

► User's Manual



KISS 1U

User's Manual
Version 1.01

Kontron Embedded Computers GmbH

0-0096-4146

Table of Contents

Introduction	3
Symbols used in this Manual	4
Important Instructions	5
Warranty Note	5
Exclusion of Accident Liability Obligation.....	5
Liability Limitation / Exemption from the Warranty Obligation	5
Safety Instruction	6
Operation of Laser Source Devices	8
Electrostatic Discharge (ESD)	8
Grounding Methods.....	9
Instructions for the Lithium Battery	9
FCC Statement.....	10
Electromagnetic Compatibility.....	10
Scope of Delivery	11
Type Label and Product Identification.....	11
Product Description	12
Front Side	14
Front Access Panel.....	15
Controls and Indicators	16
Interfaces on the Front Side.....	17
Filter Pad Holders	17
Drive Bays.....	17
Rear Side.....	18
External Interfaces of the SBC Card (PCI-960).....	18
Grounding Pin (Protective Earthing).....	19
Power Supply	20
Side View.....	21
Cover	22
Integrated SBC Card	23
Backplane and available Expansion Slots.....	24
System Configuration depending on the internal Drive Bays.....	25
Fan Slide-in Modules.....	29

Assembly, Disassembly	30
Attaching the Rubber Feet	30
Handling internal Components	31
Installing Expansion Cards	31
Installation in a 19" Industrial Cabinet	33
Starting up	35
Connecting the AC power cable	35
DC Connection	35
Operating System and Hardware Component Drivers	38
Maintenance and Prevention	39
Replacing the System Fans	40
Cleaning the Filter Pads	41
Replacing the Lithium Battery	43
Slide Rails (Option)	44
Technical Data	45
Electrical Specifications	46
Power Specification	46
Mechanical Specifications	47
Environmental Specifications	47
Directives and Standards	48
Standard Ports – Pin Assignments	49
Serial Port COM1 / 2 (RS232)	49
VGA Port	50
USB Port	50
Technical Support	51
Returning Defective Merchandise	52

Introduction

Kontron Embedded Computers would like to point out that the information contained in this manual may be subject to technical alteration, particularly as a result of the constant upgrading of Kontron Embedded Computers products. The attached documentation does not entail any guarantee on the part of Kontron Embedded Computers with respect to the technical processes described in the manual or any product characteristics set out. Kontron Embedded Computers does not accept any liability for any printing errors or other inaccuracies in the manual unless it can be proven that Kontron Embedded Computers is aware of such errors or inaccuracies or that Kontron Embedded Computers is unaware of these as a result of gross negligence and Kontron Embedded Computers has failed to eliminate these errors or inaccuracies for this reason. Kontron Embedded Computers expressly informs the user that this manual only contains a general description of technical processes and instructions which may not be applicable in every individual case. In cases of doubt, please contact Kontron Embedded Computers.

This manual is protected by copyright. All rights are reserved by Kontron Embedded Computers. Copies of all or part of this manual or translations into another language may only be made with the prior written consent of Kontron Embedded Computers. Kontron Embedded Computers points out that the information contained in this manual is constantly being updated in line with the technical alterations and improvements made by Kontron Embedded Computers to the products and thus this manual only reflects the technical status of the products by Kontron Embedded Computers at the time of printing.

© 2008 by Kontron Embedded Computers

Printing and duplication, even of sections, is only permissible with the express approval of

Kontron Embedded Computers GmbH

Oskar-von-Miller-Str. 1

D-85385 Eching

Germany

Symbols used in this Manual

Symbol

Meaning



This symbol indicates the danger of injury to the user or the risk of damage to the product if the corresponding warning notices are not observed.



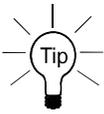
This symbol indicates that the product or parts thereof may be damaged if the corresponding warning notices are not observed.



This symbol indicates general information about the product and the user's manual.



This symbol precedes various product configuration details.



This symbol precedes helpful hints and tips for daily use.

Important Instructions

This chapter contains instructions which must be observed when using the KISS 1U platform.

The manufacturer's instructions provide useful information on the KISS 1U platform.

Warranty Note

Due to their limited service life, parts which by their nature are subject to a particularly high degree of wear (wearing parts) are excluded from the warranty beyond that provided by law. This applies to batteries, for example.

Exclusion of Accident Liability Obligation

Kontron Embedded Computers shall be exempted from the statutory accident liability obligation if the user fails to observe the safety instructions.

Liability Limitation / Exemption from the Warranty Obligation

In the event of damage to the device caused by failure to observe the hints in this manual and on the device (especially the safety instructions), Kontron Embedded Computers shall not be required to honor the warranty even during the warranty period and shall be exempted from the statutory accident liability obligation.



Safety Instruction

Please read this section carefully and observe the instructions for your own safety and correct use of the device.

The chapter also contains information on approval and interference suppression of your device.

Observe the warnings and instructions on the device and in the manual.

The KISS 1U platform has been built and tested by Kontron Embedded Computers in accordance to EN 60950/VDE 0805 and left the company in a perfectly safe condition.

In order to maintain this condition and ensure safe operation, the user must observe the instructions and warnings contained in this manual.

- The device must be used in accordance with the instructions for use.
- The electrical installations in the room must correspond to the requirements of the local (country-specific) regulations.
- Take care that there are no cables, particularly power cables, in areas where persons can trip over them.
- Do not use a power cable in sockets shared by a number of other power consumers. Do not use an extension cable.
- Only use the power cord supplied. Don't use injured or damaged power cords.
- Do not place the device in direct sunlight, near heat sources or in a damp place. Make sure the device has adequate ventilation.
- The system is not completely disconnected from the power source (AC/DC) by turning it off via the power button.

The device is only completely disconnected from the power source (AC/DC) when the power cord is disconnected either from the power source or from the unit. Therefore, the power cord and its connectors must always remain easily accessible.

The DC power source should be able to be switched off and on via an isolating switch.

- ❑ Only devices and components which fulfill the requirements of an SELV circuit (safety extra low voltage) in accordance with EN60950 may be connected to the interfaces of the system.
- ❑ All plugs on the connection cables must be screwed or locked to the chassis.
- ❑ The device is designed to be used in horizontal position.
- ❑ Maintenance or repair on the open device may only be carried out by qualified personnel authorized by Kontron Embedded Computers familiar with the associated dangers.
- ❑ The device should only be opened for the installation and removal of PCI-/PCIe x16- /PCIe x1 expansion cards, in accordance with the description in this manual. These operations should only be undertaken by qualified specialists.
- ❑ If extensions are made to the device the legal stipulations and the device specifications must be observed.
- ❑ The device must be switched off and disconnected from the power source, before installing an expansion card.
- ❑ Only approved original accessories (optional parts) approved by Kontron Embedded Computers may be used.
- ❑ It must be assumed that safe operation is no longer possible,
 - if the device has visible damage or
 - if the device no longer functions.In these cases the device must be shut down and secured against unintentional operation.

Hints for DC power connection:

- ❑ For DC Powered Systems The DC-input should not exceed 60V DC and must fulfill SELV Requirements of EN60950 standard.
- ❑ The DC/DC-supplies don't fulfill the requirements for centralized DC-Power systems as required for the use in USA. This kind of unit is not allowed to be used as a stand-alone computer.
- ❑ The DC version KISS 1U PCI960-C is for usage/installing in RESTRICTED ACCESS LOCATION only.

Operation of Laser Source Devices

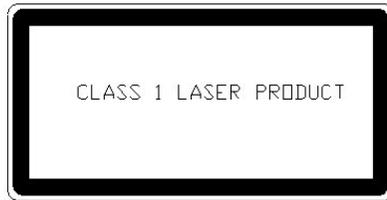


Fig. 1: Warning label on laser radiation

The optional CD ROM and DVD drives contain light-emitting diodes (classified in accordance with EN 60825-1/A2.2001: LASER CLASS 1) and therefore must not be opened.

If the enclosure of such a drive is opened, invisible laser radiation is emitted. Do not allow yourself to be exposed to this radiation.

The laser system meets the code of Federal Regulations 21 CFR, 1040 for the USA and the Canadian Radiation Emitting Devices Act, REDR C 1370.



Electrostatic Discharge (ESD)

A sudden discharge of electrostatic electricity can destroy static-sensitive devices or micro-circuitry. Therefore proper packaging and grounding techniques are necessary precautions to prevent damage. Always take the following precautions:

1. Transport boards in ESD-safe containers such as boxes or bags.
2. Keep electrostatic sensitive parts in their containers until they arrive at the ESD-safe workplace.
3. Always be properly grounded when touching a sensitive board, component, or assembly.
4. Store electrostatic-sensitive boards in protective packaging or on antistatic mats.

Grounding Methods

The following measures help to avoid electrostatic damages to the device:

1. Cover workstations with approved antistatic material. Always wear a wrist strap connected to workplace as well as properly grounded tools and equipment.
2. Use antistatic mats, heel straps, or air ionizers for more protection.
3. Always handle electrostatic-sensitive components by their edge or by their casing.
4. Avoid contact with pins, leads, or circuitry.
5. Turn off power and input signals before inserting and removing connectors or connecting test equipment.
6. Keep work area free of non-conductive materials such as ordinary plastic assembly aids and styrofoam.
7. Use field service tools such as cutters, screwdrivers, and vacuum cleaners which are conductive.
8. Always place drives and boards PCB-assembly-side down on the foam.

Instructions for the Lithium Battery

The SBC board is equipped with a lithium battery. For replacing of this battery, please observe the instructions described in the “Replacing the Lithium Battery”, chapter.



Warning

Danger of explosion when replacing with wrong type of battery. Replace the battery only with UL listed Lithium battery that has the same or equivalent type recommended by Kontron



Do not dispose of lithium batteries in general trash collection. Dispose of the battery according to the local regulations dealing with the disposal of these special materials, (e.g. to the collecting points for dispose of batteries).

FCC Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

(English): This Class A digital apparatus complies with the Canadian ICES-003.

(French): Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Electromagnetic Compatibility

This product has been designed for industrial, commercial and office use, including small business use. The most recent version of the EMC guidelines (EMC Rules 2004/108/EC) and/or the German EMC laws applies. If the user modifies and/or extends the equipment (e.g. installation of add-on cards) the prerequisites for the CE conformity declaration (safety requirements) may no longer applies.

Scope of Delivery

- KISS 1U platform (with the system configuration ordered)
- AC power cord (AC system configuration only)
- Rubber feet (self-adhesive)

Optional Components

- Slide rails

Type Label and Product Identification

The type label for the KISS 1U platform is located on the right side of the device.

Product Designation	Product Identification
KISS 1U PCI960 - A	KISS 1U with PCI-960 SBC card (Single Board Computer) and AC power supply (wide range)
KISS 1U PCI960 - B	KISS 1U with PCI-960 SBC card (Single Board Computer) and +24VDC power supply
KISS 1U PCI960 - C	KISS 1U with PCI-960 SBC card (Single Board Computer) and +48VDC power supply

Product Description

KISS 1U is a scalable 1U (19") platform which is equipped with a single board computer (SBC) and which thereby supports different system configurations.

The KISS 1U can be equipped with up to four drive bays (front-accessible or internal) supporting different drives: 2.5" or 3.5" hard disks (SATA, SATA RAID), IDE: 3.5" Floppy, 5.25" Slim DVD/CD etc.).

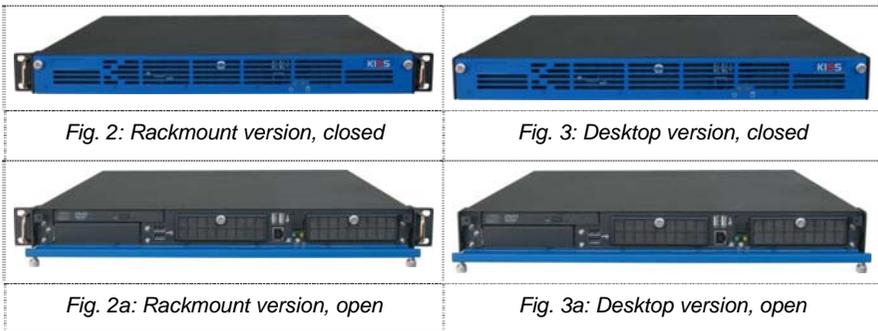
The 3.5" hard disks are installed with a shock and vibration absorber into the KISS 1U-System.

The KISS 1U platform can be expanded either with PCI, or with PCIe (full-size or half-size) expansion cards (depending on the ordered system configuration).

The flexible customer-specific hardware system configuration and robust design with excellent mechanical stability provides the KISS 1U platform with the necessary characteristics for a computer, which is suitable for use in harsh industrial environments.

The KISS 1U platform is available as a 19" rack device and as a desktop version.

KISS 1U Platform Versions:



The device can alternatively be equipped with a wide Range AC, a +24VDC or +48VDC power supply (depending on the ordered system configuration).

The controls of the KISS 1U are located behind the front access panel and simply consist of a power button.

The indicators are located on the front of the device: These comprise a "Power LED" and a "Hard disk activity LED" as standard.

The system fans mounted on the front of the device are built into the device using a fan slide-in module. The fan slide-in module simplifies the installation and removal of these components, even during operation.

The washable filter pads, which protect the system from dirt, are located at the front of the device. It is possible to change the filter pads during operation of the KISS 1U platform.

The name plate is located on the right side of the device.



Fig. 4: Front side: KISS 1U PCI960-A/ -B/ -C



Fig. 5: Rear side: KISS 1U PCI960-A (AC power supply)



Fig. 6: Rear side: KISS 1U PCI960-B (+24VDC power supply)



Fig. 7: Rear side: KISS 1U PCI960-C (+48VDC power supply)

Front Side

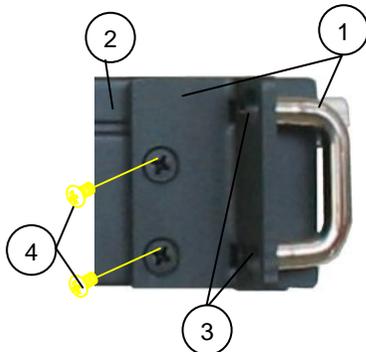
The KISS 1U platform is also available as rackmount version.



Fig. 8: Front side (rackmount version) with front access panel closed

- | | | | |
|---|---|---|--|
| 1 | 19" bracket with handle | 3 | Light diffusers for HDD and Power LED indicators |
| 2 | Ventilation grilles on the front access panel | 4 | Front access panel with captive knurled screws |

You can very easily convert your system to a desktop version. To do so, unscrew the left and right hand 19" brackets from the device.



- | | |
|---|---|
| 1 | 19" bracket with handle |
| 2 | KISS 1U platform chassis |
| 3 | Anchor points for installation in an industrial cabinet |
| 4 | Screws for attaching the 19" bracket |

Fig. 9: 19" bracket with mounting screws

There are rubber feet supplied with the desktop version of the KISS 1U. To attach the rubber feet, proceed as described in the "Attaching the Rubber Feet" chapter.

Front Access Panel

The front access panel (Fig. 8, Pos. 4) provides protection against unauthorized access to the front-accessible drives, the filter pad holders and the power button of your KISS 1U platform. The front access panel can be screwed on and off by the knurled screws. During standard operation, the front access panel should be closed and the knurled screws should be tightened.



The front access panel cannot be closed if USB devices are connected to the USB interfaces.

The power button, the power LED, the hard disk activity LED, 4x USB2.0 interfaces, 1x LAN interface, a 3.5" and a 5.25" slim drive bay are located behind the front access panel.

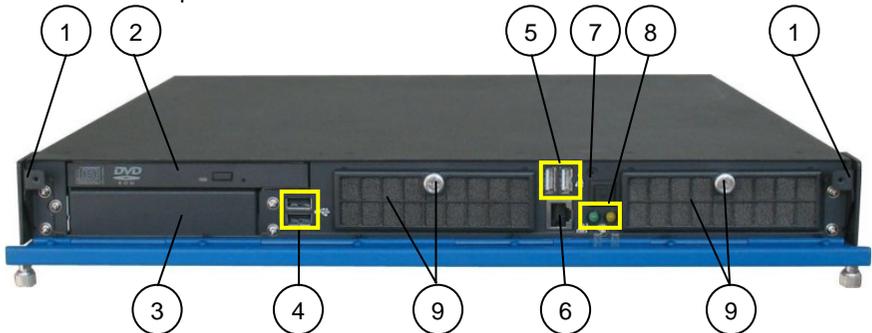


Fig. 10: Front side (desktop version) with the front access panel open

- | | | | |
|---|--|---|--|
| 1 | Stop bracket with tapped hole for fixing the front access panel | 4 | 2x USB 2.0 (from the SBC) |
| 2 | L1: front-accessible 5.25" slim drive bay (shown with a slim DVD drive installed) | 5 | 2x USB 2.0 (from the backplane) |
| 3 | L2: front-accessible 3.5" drive bay (with blanking cover) | 6 | 1x LAN interface |
| | | 7 | Power button |
| | | 8 | Indicators (power LED and hard disk LED) |
| | | 9 | 2x Filter pad holder with fixing screw |

Controls and Indicators

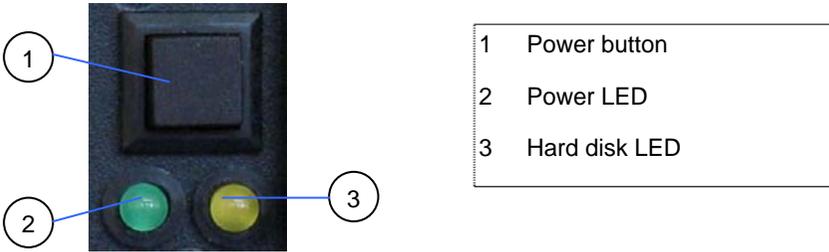


Fig. 11: Controls and Indicators on the front side

Power button	Use this button to switch the system on or off. Note the possible settings for the power button [BIOS setting: Chipset Setup/South Bridge Chipset Configuration/Restore on AC Power Loss/ Last State (Default), Power Off or Power On].
Power LED (green)	This LED lights up green when the system is switched using the power button. Prerequisite: The system must be connected to an appropriate power source (AC or DC).
HDD LED (yellow)	This LED lights up yellow at hard disk activity.



Do not press the eject button, while the drive LED is lit or flashing.



Even when you switch off the system using the Power On/Off button, there is still a standby voltage of 5 V on the SBC card. Switching off the device using the Power On/Off button does not disconnect the computer from the power source. The device is only fully disconnected when you remove the power cable (AC or DC) from the power source or from the device. For this reason, always provide easy access to the power cable, including its plug.

Interfaces on the Front Side

USB Interfaces

The KISS 1U system has four USB (2.0) interfaces (see Fig. 10, Pos. 4 and Pos. 5) on the front side. Various USB-compatible peripherals can be connected to these ports.

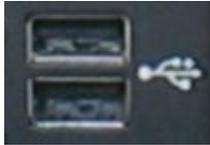


Fig. 12: USB interfaces on the front side (SBC card)



Fig. 13: USB interfaces on the front side (backplane)

LAN Interface

This interface is available as (see Fig. 10, Pos. 6) RJ45 connector and supports a data transfer rate up to 10/100/1000Mbps.

Filter Pad Holders

The filter pad holders (see Fig. 10, Pos. 9) are located behind the ventilation grille of the front access panel. A filter pad is inserted in each of the two filter pad holders. The filter pads protect your system against dust and dirt. The filter pads are exchangeable while the system is powered up (see chapter "Cleaning the Filter Pads").

Drive Bays

Two front-accessible drive bays, L1 (1x 5.25" Slim) and L2 (1x 3.5"), are located on the front side, which are equipped according to the ordered system configuration.



Fig. 14: Configuration example with a DVD Slim drive (L1) and with no 3.5" drive installed (L2)

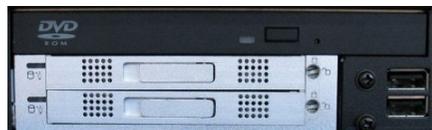


Fig. 15: Configuration example with a DVD Slim drive (L1) and a RAID1 slim drive for 2x 2.5" SATA HDD (L2)

Rear Side

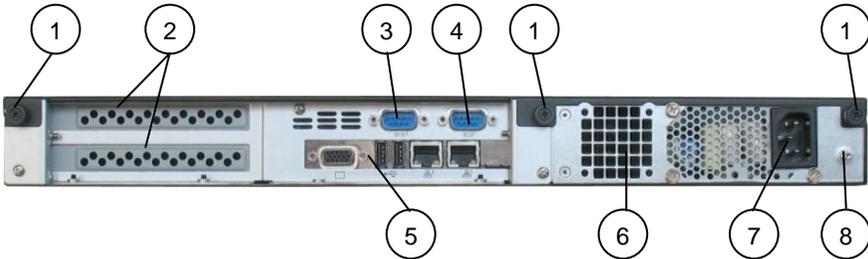


Fig. 16: KISS 1U – Rear side with external interfaces of the SBC card and two additional serial interfaces (picture shows AC power supply version)

- | | |
|--|--|
| 1 Captive knurled screws of the chassis cover | 5 External interfaces of the SBC card |
| 2 Free card slots:
2x PCI (32 Bit 33MHz) or
2x PCIe (1x PCIe x16 and 1x PCIe x4) | 6 Vent holes |
| 3 COM1 (RS232) | 7 Connector for power cable
(picture shows AC power supply version) |
| 4 COM2 (RS232)
RS422/RS485, configurable | 8 Grounding Pin |

External Interfaces of the SBC Card (PCI-960)

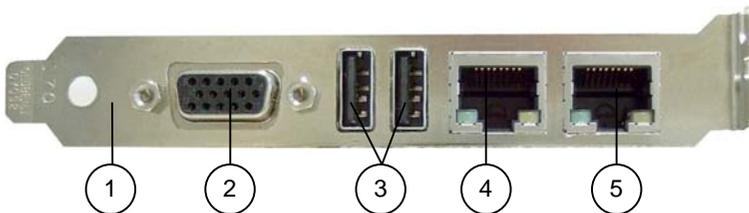


Fig. 17: External interfaces of the PCI-960 SBC card

- | | |
|------------------------|-----------------------------------|
| 1 PCI-960 slot bracket | 4 LAN2 port with integrated LEDs |
| 2 VGA port | 5 LAN1 ports with integrated LEDs |
| 3 2x USB 2.0/1.1 port | |

VGA Port

This port consists of a 15-pin D-SUB connector. An external analog monitor can be connected to this interface.

USB 2.0 Ports

Various USB-compatible peripherals can be connected to these ports.

LAN Ports

These ports comprise RJ45 connectors with integrated LEDs and have a transfer rate of 10/100/1000Mbps.

Serial Interfaces (COM1, COM2)

The RS232 connectors are available as 9-pin D-SUB plugs for the connection of serial peripherals.

These led out interfaces are configured as RS232.

The COM2 interface can be configured as RS422/RS485.



A detailed description of SBC ports can be found in the manual for the PCI-960 SBC card. You can download the relevant manual from our web site at www.kontron.com by selecting the product.

Grounding Pin (Protective Earth)

The chassis of the KISS 1U PCI960-C system must be grounded by establishing a **large-area contact** between the grounding pin and an appropriate grounding connection point.

The minimum cross section of the grounding cable must be 0.75 mm² (AWG 18).

Power Supply

The power supply (AC or DC) is located at the rear side of the KISS 1U platform. The power supply installed depends on the system configuration ordered.

For information about the power supply unit and the supply voltage of your system, refer to the type label attached to the right side of the device.



KISS 1U PCI960 - A with
270W power supply
100-240V (wide-range)
1.5A max.

Fig. 18: AC connector on the rear side of the KISS 1U PCI960 - A



KISS 1U PCI960 - B
200W power supply
+24VDC
7.0A max.

Fig. 19: DC connector on the rear side of the KISS 1U PCI960 - B



KISS 1U PCI960 - C with
200W power supply
+48VDC
3.5A max.

Fig. 20: DC connector on the rear side of the KISS 1U PCI960 - C



After attaching the cables to the terminals of the DC power supplies, always operate the KISS 1U PCI960-B/-C systems with the protective cover available.

Side View

Five M4 metric tapped holes are available at the left and right side of the unit.

These can be used in order to attach slide rails (not included in the scope of delivery) to the KISS Short (for system installation into a 19" industrial cabinet). Refer to the "Slide Rails (Option)" chapter.

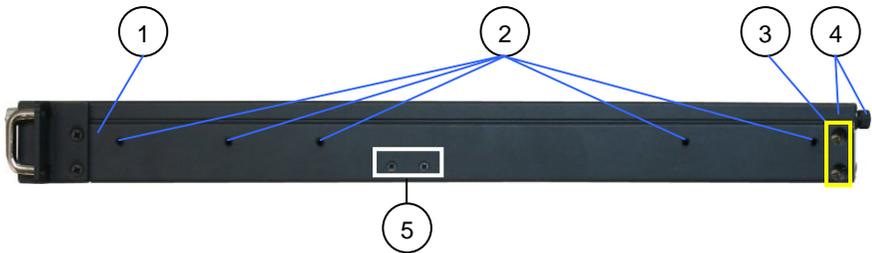


Fig. 21: Side view

- | | |
|---|---|
| 1 Right side view of the KISS 1U platform | 4 Cover with captive knurled screws (for fixing the device cover) |
| 2 5x tapped M4 metric holes (on both sides) | 5 Screws for fixing the card holder position (adjustable) (see Fig. 26, Fig. 27 and Fig. 28 Pos. 7) |
| 3 Mounting screws of the add-on card slots | |

Cover

The cover will be fixed to the chassis using four fixing brackets and three captive knurled screws. The fixing brackets are located on the inside of the cover (three at the front edge (Fig. 22, Pos. 4) and one at the rear edge (Fig. 22, Pos. 3) of the cover).

When closing the cover, make sure that the fixing brackets (Fig. 22, Pos. 2 and Pos. 4) will be inserted properly into the corresponding retaining brackets of the cover (Fig. 26, Pos. 5 and Pos. 11, Fig. 27 and Fig. 28, Pos. 5 and Pos. 12).

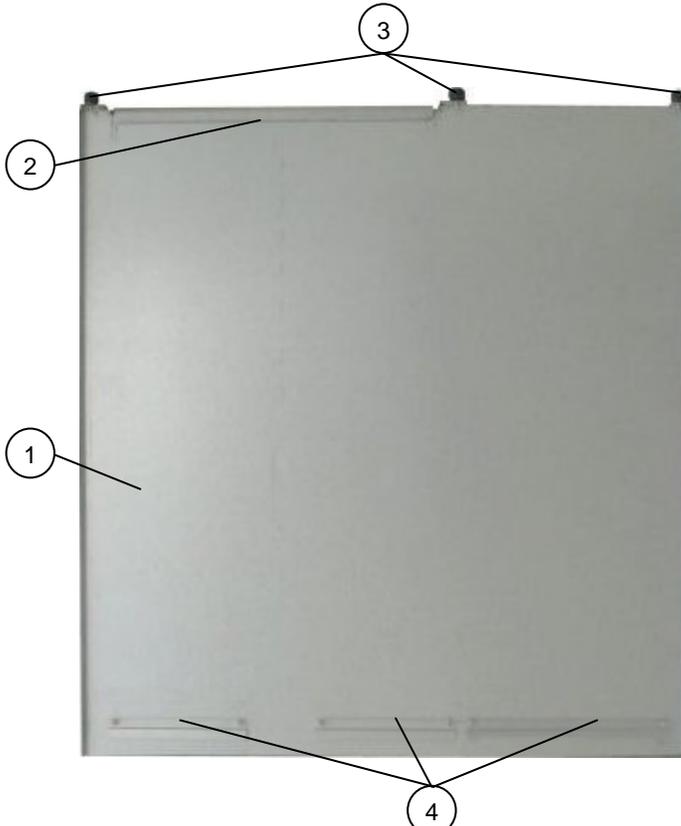


Fig. 22: Inside of the cover with fixing brackets

- | | |
|--------------------------|----------------------------|
| 1 Inside of the cover | 3 Captive knurled screws |
| 2 1x rear fixing bracket | 4 3x front fixing brackets |

Integrated SBC Card

Your KISS 1U platform is equipped with a PICMG1.3 SBC card (**S**ingle **B**oard **C**omputer) and a backplane. The backplane is factory-equipped either with PCI or with PCIe slots.

System Designation	Integrated Board	Board Type
KISS 1U PCI960-A/-B/-C	PCI-960	PICMG 1.3 SBC card

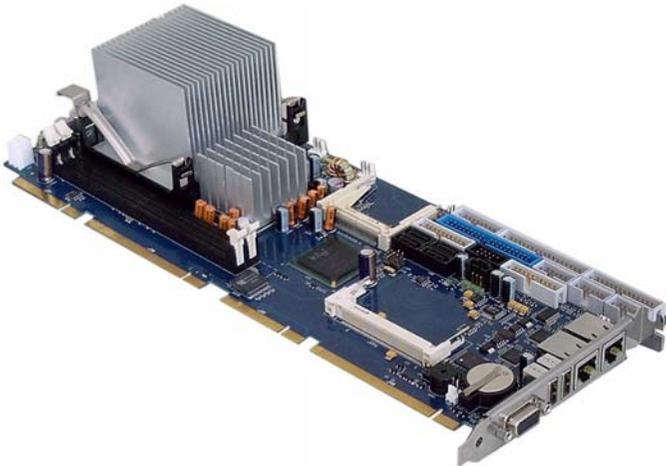


Fig. 23: PCI-960 SBC card



More information and technical data can be found in the corresponding board manual (PCI-960 board).

You can download the manual from our web site at www.kontron.com by selecting the product.

System	Integrated Drives	Available Slots for Expansion Cards
KISS 1U	L1, L2, L3 (see Fig. 16)	2x PCI, 32 Bit @ 33 MHz, full-size or half-size or 1x PCIe x4 and/or 1x PCIe x16, full-size or half-size
	L1, L2, L3 and L4 or L4.1 (see Fig. 16a and Fig. 16b)	2x PCI, 32 Bit @ 33 MHz, half-size or 1x PCIe x4 and/or 1x PCIe x16, half-size

Backplane and available Expansion Slots

Depending on the KISS 1U hardware configuration ordered, you can expand your system either with PCI or PCIe add-on cards (full-size and/or half-size cards).



Fig. 24: KISS 1U with PCI slots



Fig. 25: KISS 1U with 1x PCIe x16 and 1x PCIe x4 slot

Legend for Fig. 24 and Fig. 25:

- 1 1x PCI, 32 Bit @33 MHz slot
- 2 PCIe x4 slot
- 3 PCIe x16 slot

System Configuration depending on the internal Drive Bays

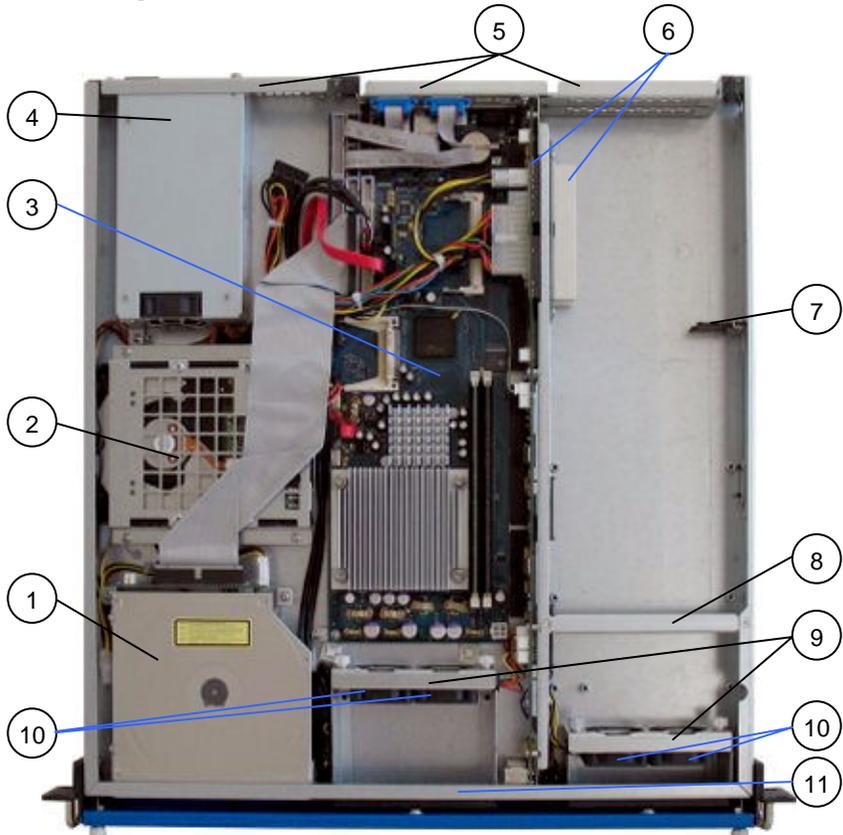


Fig. 26: KISS 1U configuration with three drives (L1, L2 and L3)

- | | | | |
|---|---|----|--|
| 1 | L1 and L2 drive (front-accessible); L1 and L2 are located one upon the other in one drive cage | 6 | Backplane with two slots (picture shows PCI slots) for expansion cards |
| 2 | L3 : internal 3.5" SATAII hard disk installed in a drive cage | 7 | Card holder (position adjustable, see Fig. 21, Pos. 5) |
| 3 | PCI-960 SBC (PICMG 1.3) | 8 | Strut |
| 4 | Power supply | 9 | Fan slide-in modules |
| 5 | Fixing brackets for the cover on the rear side | 10 | Fan slide-in module with two fans |
| | | 11 | Fixing brackets for the cover on the front side |

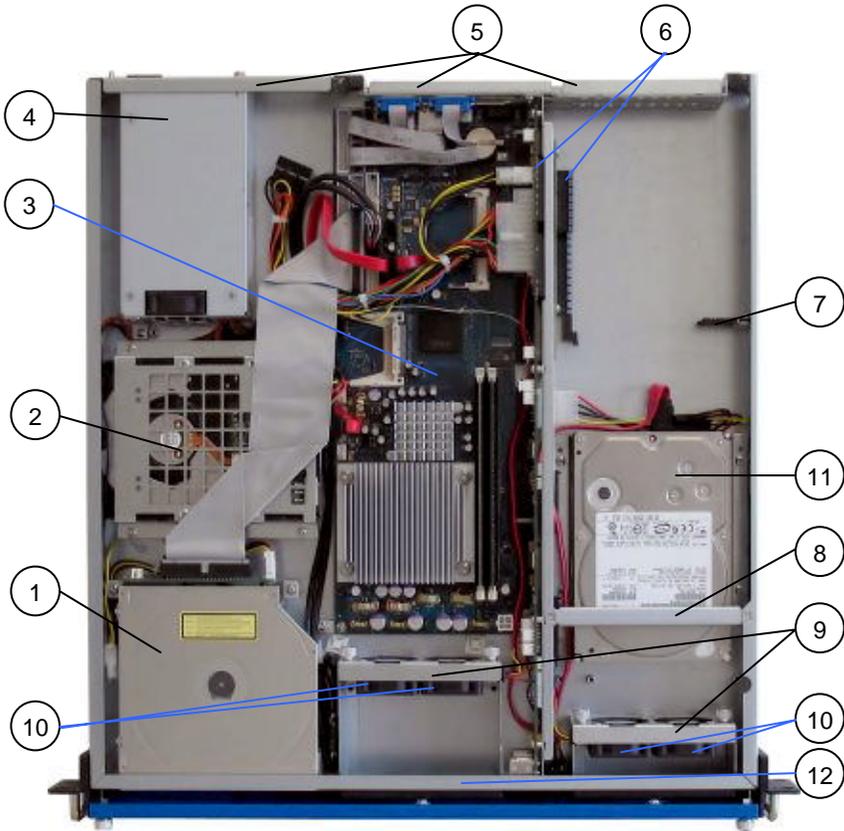


Fig. 27: KISS 1U configuration with four drives
[L1, L2, L3 and L4 (as one 3.5" SATA hard disk)]

- | | | | |
|---|---|----|---|
| 1 | L1 and L2 drive (front-accessible); L1 and L2 are located one upon the other in one drive cage | 6 | Backplane with two slots (picture shows PCIe slots) for expansion cards |
| 2 | L3 : internal 3.5" SATAII hard disk installed in a drive cage | 7 | Card holder (position adjustable, see Fig. 21, Pos. 5) |
| 3 | PCI-960 SBC (PICMG 1.3) | 8 | Strut |
| 4 | Power supply | 9 | Fan slide-in modules |
| 5 | Fixing brackets for the cover on the rear side | 10 | Fan slide-in module with two fans |
| | | 11 | L4: 1x 3.5" SATA hard disk; (can only be factory-installed) |
| | | 12 | Fixing brackets for the cover on the front side |

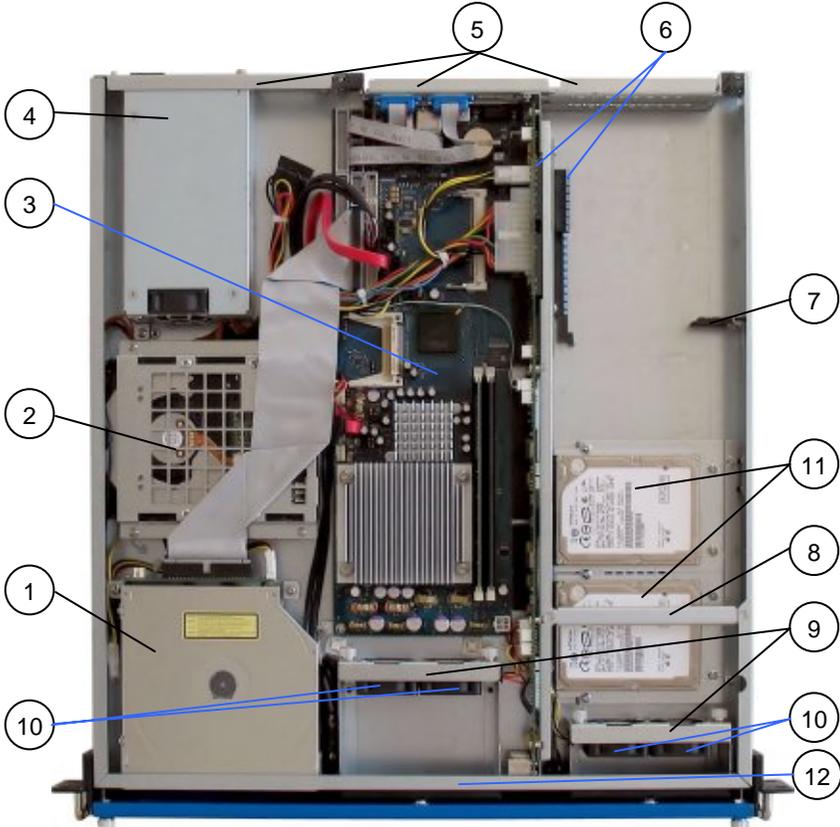


Fig. 28: KISS 1U configuration with four drives
[L1, L2, L3 and L4.1 (with 2x 2.5" SATA hard disks)]

- 1 **L1** and **L2** drive (front-accessible); L1 and L2 are located one upon the other in one drive cage
- 2 **L3**: internal 3.5" SATAII hard disk installed in a drive cage
- 3 PCI-960 SBC (PICMG 1.3)
- 4 Power supply
- 5 Fixing brackets for the cover on the rear side
- 6 Backplane with two slots (picture shows PCIe slots) for expansion cards
- 7 Card holder (position adjustable, see Fig. 21, Pos. 5)
- 8 Strut
- 9 Fan slide-in modules
- 10 Fan slide-in module with two fans
- 11 **L4.1**: 2x 2.5" SATA hard disk; (can only be factory-installed)
- 12 Fixing brackets for the cover on the front side

Depending on the expansion cards to be installed (full size or half size), the following drive bays will be available:

Drive Bays L1 to L4		KISS 1U
		Applicable Drives
L1	1x 5.25" Slim front-accessible	1x Slim-DVD/CD/etc. (IDE)
L2	1x 3.5" front-accessible	1x KISS Stor 1 Slim [(Raid 1), with 2x SATA HDD] or 1x 3.5" FDD (IDE) or 1x 2.5" removable (hot swap) SATA hard disk (in a 3.5" slide-in module)
L3	1x 3.5" internal	1x HDD (SATAII) L3 not applicable when a 2.5" removable SATA hard disk (3.5" hot swap slide-in module) is installed in L2 !
L4	Optional: 1x 3.5" (internal)	1x HDD (SATAII)
L4.1	or 2x 2.5" (internal)	or 2x HDD (SATAII)



The 2.5" hot swap slide-in module allows the replacement of the removable SATA hard disk (**in L2**) while the system is operating.

The removable SATA hard disk can also be connected to an external USB interface.

Fan Slide-in Modules

The four front fans of the system are firmly mounted in user friendly, exchangeable fan slide-in modules (hot swap). Thus, a reliable air circulation for an optimal, active cooling of the system is provided. Each fan slide-in module is installed in a fan compartment on the front side of the system.

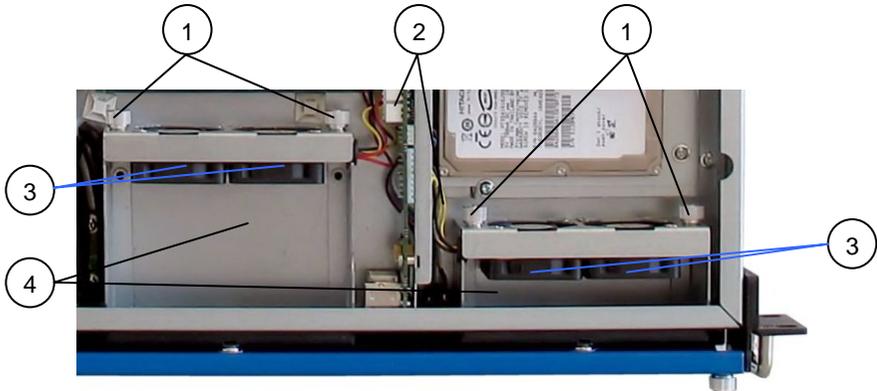


Fig. 29: Exchangeable fan slide-in modules with captive knurled screws

- | | |
|---|---|
| 1 Captive knurled screws for fixing the fan slide-in modules in the corresponding fan compartment | 3 Two fans per fan slide-in module |
| 2 Cables and connectors for the voltage supply of the fans | 4 Fan compartment on the front side of the KISS 1U platform |



KISS 1U must only be operated with functioning system fans (fan slide-in modules)!

(See chapter “Replacing the System Fans”)

Faulty components should only be replaced with original Kontron spare parts.

- ❑ Fan slide-in module assembled, Part No. 1017-2548

Assembly, Disassembly

Attaching the Rubber Feet

The rubber feet can be used for the desktop version of the system.

Please follow these steps to attach the rubber feet to the bottom side of the chassis:



Before attempting to mount the rubber feet, the system must be powered-down and the power cord has to be disconnected from the power source.

1. Make sure that all cards are secured into the unit and that the system cover is installed and secured.
2. Turn the system upside down.
3. Remove the protect foil from the delivered self adhesive rubber feet.
4. Attach the self adhesive rubber feet to the bottom side of the chassis.

Handling internal Components

This chapter contains important information on working safely with internal components. Please follow these instructions when handling cards or replacing system fans.

Installing Expansion Cards

Please comply with the following instructions when installing/removing expansion cards:



The installation and removal of expansion cards should only be carried out by qualified specialists, in accordance with the description contained in this manual.

The DC version KISS 1U PCI960-C is for usage/installing in “RESTRICTED ACCESS LOCATION” only.

Before removing the device cover, ensure that your system is switched off and disconnected from the mains.

When equipping your system with expansion cards, make sure that the power consumption per card does not exceed 25 W.



Please follow the safety instructions for components that are sensitive to electrostatic discharge (ESD). Failure to observe this warning notice may result in damage to the device or the latter's components.



Please read the information provided by the manufacturer of any expansion cards before installing them or removing them from your system.

To install or remove an expansion card proceed as follows:

1. Switch your system off and disconnect it from the mains power. Disconnect any peripheral devices.
2. Loosen the three knurled head screws, which secure the cover on the rear side of the system.



Fig. 30: Loosening the three knurled screws on the rear side of the KISS 1U system

3. Pull the cover back to remove the cover fixing brackets (see Fig. 22, Pos. 2 and Pos. 4) from the retaining brackets (Fig. 26, Pos. 5 and Pos. 11, Fig. 27 and Fig. 28 Pos. 5 and Pos. 12) of the chassis.



Fig. 31: Sliding the cover back will pull out the cover fixing brackets from the retaining brackets of the chassis.

4. Lift the cover (on the rear edge) and remove it



Fig. 32: Removing the cover

5. Remove or insert the expansion card into/from the PCI or PCIe slot on the backplane [depending on the system configuration ordered, see Fig. 24 or Fig. 25]) and secure the bracket of the expansion card or the blanking plate at the rear side of the chassis.
6. Close the device and secure the cover with the knurled head screws. When closing the cover, pay attention that the cover fixing brackets (Fig. 22, Pos. 2 and Pos. 4) slide into the corresponding retaining brackets (Fig. 26, Pos. 5 and Pos. 11, Fig. 27 and Fig. 28 Pos. 5 and Pos. 12) of the chassis.

Installation in a 19" Industrial Cabinet



Only for DC system versions that are utilized into countries where UL-approval is necessary!!!

The DC version KISS 1U PCI960-C is for usage/installing in "RESTRICTED ACCESS LOCATION" only.



Important Instructions!

The KISS 1U system has to be installed and operated only by trained and qualified personal.

The KISS 1U should be installed into a 19"-industrial cabinet with mounting rails.

Make sure there is sufficient air circulation around the device when installing the KISS 1U platform.

The openings for air intake and exhaust on the device and the 19" industrial cabinet must not be obstructed.

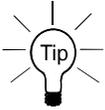
When installing in a 19" cabinet, leave at least 5 cm (approx. 2") of space free around the unit to prevent the device from possibly overheating!

The 19" industrial cabinet must stand firmly in place. You can improve its stability by placing the components into it from the bottom up. Heavy components should be placed down below.

If further stabilization is necessary, then bolt the 19" industrial cabinet to the floor or anchor it on the wall.

The voltage feeds must not be overloaded. Adjust the cabling and the external overcharge protection to correspond with the electrical figures indicated on the type label.

The type label is located on the bottom side of the device.



If you want to expand your system with additional cards or supplementary drives, than do this before installing the KISS 1U into the 19" industrial cabinet.

Please observe at that place the details included in the chapter "Handling internal Components".

Before closing the industrial cabinet, you must connect your peripherals to the corresponding system interfaces.

Starting up



The power source voltage must match the voltage on the type label.

Connecting the AC power cable

The AC mains input socket is located on the back of the KISS 1U platform.



Fig. 33: AC power connection

1. Connect the supplied AC power cord into the system mains input socket.
2. Connect the other end of the AC power cord to a corresponding AC outlet.

DC Connection



Only for DC system versions that are utilized into countries where UL-approval is necessary!!!

The DC version KISS 1U PCI960-C is for usage/installing in "RESTRICTED ACCESS LOCATION" only.



Make sure that the DC power source can be switched off and on via an isolating switch.

The device is only completely isolated from the DC power source by disconnecting the power cable from the power source or from the device. For this reason, ensure that there is easy access to the power cable, including its plugs.

After attaching the cables to the terminals of the DC power supplies, always operate the KISS 1U PCI960-B/C systems with the protective cover available.



The chassis of the KISS 1U PCI960-C system must be grounded by establishing a **large-area contact** between the grounding pin and an appropriate grounding connection point. The minimum cross section of the grounding cable has to be 0.75 mm² (AWG 18).



Fig. 34: +24VDC connection

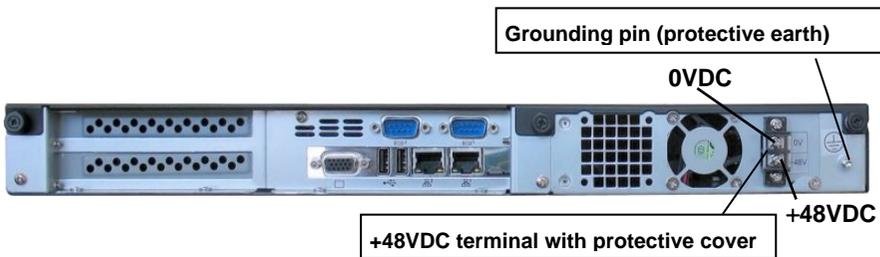


Fig. 35: +48VDC connection



The integrated DC power supply (+24VDC and +48VDC) is not equipped with a power switch. Before connecting the DC power source to the DC power supply, make sure that the DC power source is switched off via an isolating switch.

1. Prepare two isolated wires (minimum cross section \varnothing 0.75 mm²), according to the connectors of the screw terminal.
2. Loosen the two cross-head screws of the screw terminal so that you can insert the stripped ends of the wires. Pay attention to the polarity of the wires.
3. Fasten the cross-head screws firmly.

4. Cover the connectors of the screw terminal with the protective cover available.
5. The chassis of the KISS 1U PCI960-C system must be grounded by establishing a **large-area contact** between the grounding pin and an appropriate grounding connection point. The minimum cross section of the grounding cable has to be 0.75 mm^2 (AWG 18).
6. Prepare the other ends of the wires according to the DC power source.
7. Connect the wires prepared to the DC power source. Pay attention to the polarity of the connectors. The power source has to be switched off.
8. Switch on the power source.

Operating System and Hardware Component Drivers

Your system can be supplied either with or without a pre-installed operating system installed.

If you have ordered your KISS 1U with a pre-installed operating system, all drivers are installed in accordance with the system configuration ordered (optional hardware components). Your system is fully operational when you switch it on for the first time.

If you have ordered KISS 1U without a pre-installed operating system, you will need to install the operating system and the appropriate drivers for the system configuration you have ordered (optional hardware components) yourself.



You can download the relevant drivers for the installed hardware from our web site at www.kontron.com by selecting the product.



Pay attention to the manufacturer specifications of the operating system and the integrated hardware components.

Maintenance and Prevention

Equipment from Kontron Embedded Computers requires only minimum servicing and maintenance for problem-free operation.

- ❑ For light soiling, clean the KISS 1U with a dry cloth.
- ❑ Stubborn dirt should be removed using a mild detergent and a soft cloth.
- ❑ Clean the filter pad regularly (refer to the “Cleaning the Filter Pads” chapter).

Replacing the System Fans



The operation of the KISS 1U is permitted only with functional fan slide-in modules.

Defective components must be replaced only by Kontron original spare parts.

- ❑ Fan slide-in module KISS 1U: Part Number: 1017-2548

Important Instructions!

The fan slide-in module can be replaced during operation. This should only be carried out by a qualified specialist, who is aware of the associated dangers.

Keep your hands and fingers away from rotating parts of the fan. Before taking out the fan slide-in module, wait until the fan has totally stopped.

To replace a fan slide-in module, proceed as follows:

1. Open the device, as described in the “Installing Expansion Cards” chapter (Steps 2-3). Pull the cover back as far as necessary to gain access to the fan slide-in module.
2. Unplug the corresponding power cable (Fig. 29, *Pos. 2*) of the defective fan.
3. Loosen the captive knurled screws (Fig. 29, *Pos. 1*) and pull the fan slide-in module upwards out of the fan compartment (Fig. 29, *Pos. 4*).
4. Replace the fan slide-in module with a new functioning one and push the latter into the system fan compartment until it is attached to the connector.
5. Tighten the knurled screws up again.
6. Close the device and secure the cover with the knurled head screws.



When closing the cover, pay attention that the cover fixing brackets (Fig. 22, *Pos. 2* and *Pos. 4*) slide into the corresponding retaining brackets (Fig. 26, *Pos. 5* and *Pos. 11*, Fig. 27 and Fig. 28, *Pos. 5* and *Pos. 12*) of the chassis.

Cleaning the Filter Pads

The filter pads are placed in the filter pad holders on the front of the system. The level of dirt on the filter pads depends on the level of dirt in the operating environment. If the filter pads become too heavily soiled, it can result in the device becoming unusually hot. This is why we recommend cleaning the filter pads as frequently as necessary, depending on the level of dirt.

The filter pads can be replaced during operation.

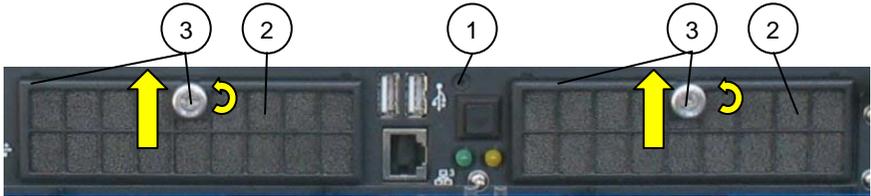


Fig. 36: Front side detail: Position of the filter pads



Fig. 37: Front side detail without filter pads and filter holders



Fig. 38: Filter pad

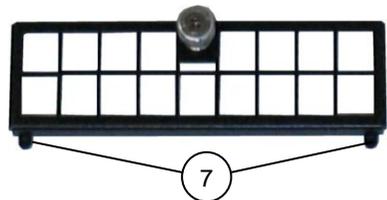


Fig. 39: Filter pad holder

Legend for Fig. 36, Fig. 37 and Fig. 39:

- | | |
|--|---|
| 1 KISS front side | 4 Tapped hole for knurled screw |
| 2 Filter pad | 5 Vent holes |
| 3 Filter pad holder with knurled screw | 6 Positioning holes for filter pad holder |
| | 7 Positioning tongues |

To replace the filter pad, proceed as follows:

1. Open the front access panel.
2. Loosen the screw that attaches the filter pad holder to the chassis.
3. Pull the filter pad holder in the direction of the arrow and lift it off.
4. Remove the soiled filter pad.
5. Clean the filter pad as follows:
 - Rinse in water (up to approximately 40°C, possibly with the addition of a standard gentle detergent).
 - It is also possible to beat the filter pad, to vacuum it or blow it with compressed air.
 - For dirt that contains grease/oil, the filter pad should be rinsed with warm water with the addition of a degreaser. Filter pads should not be cleaned with powerful water jets or wrung out.
6. After cleaning and drying the filter pad, place it in the filter pad holder. Re-attach the filter pad holder to the front of the chassis.
7. Screw the filter pad holder to the chassis using the fixing screw.



Faulty components must only be replaced with original spare parts from Kontron.

Air filter pad: part number: 1017-2544.

Replacing the Lithium Battery

The SBC card of your system is equipped with a lithium battery. To replace the lithium battery, proceed as follows:

1. Open the device as described in “Installing Expansion Cards” (steps 1-3).
2. Remove the lithium battery from the battery holder by pulling up the clamping spring.
3. Place a new lithium battery into the battery holder.
4. When doing this, pay attention to the polarity of the battery (the plus pole should be on the top).
5. The lithium battery must only be replaced with the same type of battery or with a type of battery recommended by Kontron Embedded Computers.
6. Close the device, as described in the “Installing Expansion Cards” (step 5) chapter.



The lithium battery must be replaced with an identical battery or a battery type recommended by Kontron Embedded Computers (Lithium battery 3.0 V for RTC, type: CR2032).

Install only a UL listed Lithium battery.



Do not dispose of lithium batteries in general trash collection. Dispose of the battery according to the local regulations dealing with the disposal of these special materials, (e.g. to the collecting points for dispose of batteries).

Slide Rails (Option)

Kontron stocks slide rails for installing the KISS 1U in an industrial cabinet. These rails can be ordered separately.

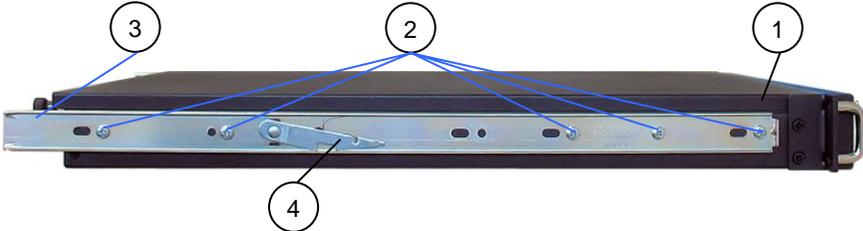


Fig. 40: Attaching the inner section of the slide rails



Fig. 41: KISS 1U platform with slide rails in pulled-out position



Fig. 42: KISS 1U platform with slide rails in pushed-in position

Legend for: Fig. 40, Fig. 41 and Fig. 42:

- 1 Side view of the KISS 1U
- 2 5x M4x6 rounded head screws
- 3 Slide rail inner section
- 4 Locking/unlocking lever
- 5 Slide rail in pulled-out position (on both sides of the chassis)
- 6 Slide rail in pushed-in position



Please ensure that only the screws provided (M4x6) are used to attach the slide rails to the KISS 1U.

Technical Data

KISS 1U	PCI960-A/-B/-C	
Installed Board		
PCI-960 (PICMG 1.3)	☑	
Backplane (PICMG 1.3)	☑	
PCI Riser Card (Option)	☑	---
or PCIe Riser Card (Option)	---	☑
Expansion Slots		
2x PCI slots (32 Bit@33MHz) • for PCI cards (full size) with L1-L3 • for PCI cards (half size) with L1-L4	☑	---
1x PCIe x16 and 1x PCIe x4 Slot • for PCIe cards (full size) with L1-L3 • for PCIe cards (half size) with L1-L4	---	☑
Drive Bays (L1- L4)		
L1: 1x 5.25" Slim (front-accessible)	1x (DVD/CD/etc.)	
L2: 1x 3.5" (front-accessible)	1x KISS Stor 1 Slim [(Raid 1), with 2x SATA HDD]] or 1x FDD or 1x 2.5" removable (hot swap) SATA HDD (in a 3.5" slide-in module)	
L3: 1x 3.5" (internal)	1x HDD (SATAII)	
L4: 1x 3.5" (internal) option or L4.1: 2x 2.25" (internal) option	1x HDD (SATAII) or 2x HDD (SATAII)	
Interfaces (on the front side)		
LAN (10/100/1000Mbps)	1x	
USB 2.0	4x	
Interfaces (on the rear side)		
LAN (10/100/1000Mbps)	2x	
USB 2.0	2x	
COM 1 (RS232)	1x	
COM 2 (RS232 (default)/RS422/RS485)	1x	
VGA	1x	
Lithium Battery	CR2032; 3.0 V; 0.22Ah	
Controls (on the front side)	On/Off button	
Indicators (on the front side)	Power LED (green) HDD LED (orange)	
Power Connector (on the rear side) and Grounding Pin (Protective Earthing)	1x AC (KISS 1U PCI960 - A) 1x DC +24VDC (-B) or +48VDC (-C)	
Slide Rails	Option	

Electrical Specifications

System Type	Product Designation	Integrated Power Supply	Input
KISS 1U	KISS 1U PCI960 - A	AC Power Supply 300W Wide Range	100-240V 50-60Hz 1.5A max.
	KISS 1U PCI960 - B	DC Power Supply 200W	+24VDC 7.0A max.
	KISS 1U PCI960 - C	DC Power Supply 200W	+48VDC 3.5A max.

Power Specification

Power specification (max. power values depending on customer- specific applications)	KISS 1U PCI960 - A	KISS 1U PCI960 - B	KISS 1U PCI960 - C
Power consumption per slot (PCI / PCIe)	25 W	25W	25W
Max. power provided by each USB interface	3.5 W	3.5 W	3.5 W
Total consumption at 2x +12 VDC	18 A	—	—
Total consumption at +5 VDC and +3,3 VDC	130 W	80 W	80 W

Mechanical Specifications

Dimensions	KISS 1U (Standard Version)
Height	1U; 44 mm (1,73")
Width	Front: 19"; Chassis: 430 mm (16.929")
Depth	Front 14 mm (0.55"); Chassis: 469 mm (18.465")
Weight (Without packaging)	Approx. 7.50 kg (16.535 lbs.)
Chassis	Chassis, black (RAL 7021) Front access panel, blue (RAL 5017)

Environmental Specifications

Ventilation	1x power supply fan 4x system fan passive CPU cooling
Operation Temperature / Relative Humidity	0 ... +50 °C (32 ... 122 °F) (not condensing)
Storage / Transport Temperature/ Relative Humidity	-20 ... +70 °C (-4 ... 158 °F) 10-90% (not condensing)
Max. Operation Altitude	3.048 m (10,000 ft)
Max. Storage / Transport Altitude	10.000 m (32,810 ft)
Operating Shock (vertical)	5 G/11 ms, half sine
Storage / Transit Shock	30 G/11 ms, half sine
Operating Vibration	10 – 500 Hz, 1.0 G
Storage / Transit Vibration	10 – 500 Hz, 2.0 G

Directives and Standards

CE Directives	
Electrical Safety	General Product Safety Directive (GPSD) 2001/95/EC
	Low Voltage Directive (LVD) 2006/95/EC
ElectroMagnetic Compatibility (EMC)	EMC Directive 2004/108/EC
CE Marking	Council Directive 93/68/EEC

Electrical Safety	Harmonized Standards
EUROPE	Information technology equipment - Safety - Part 1: General requirements EN 60950-1: 2006
U.S.A. / CANADA	Meet to UL60950-1:2006

EMC	Harmonized Standards
EUROPE	Generic emission standard for industrial environments (Emission): EN 61000-6-4:2006 Generic standards - Immunity for industrial environments (Immunity): EN 61000-6-2:2005
U.S.A.	FCC 47 CFR Part 15, Class A
CANADA	ICES-003, Class A

Standard Ports – Pin Assignments

Low-active signals are identified with a minus sign.

Serial Port COM1 / 2 (RS232)

Pin	Signal Name	9-pin D-SUB Connector
1	DCD (Data Carrier Detect)	
2	RXD (Receive Data)	
3	TXD (Transmit Data)	
4	DTR (Data Terminal Ready)	
5	GND (Signal Ground)	
6	DSR (Data Set Ready)	
7	RTS (Request to Send)	
8	CTS (Clear to Send)	
9	RI (Ring Indicator)	

VGA Port

Pin	Signal Name	15-pin D-SUB Connector (female)
1	Analog red output	
2	Analog green output	
3	Analog blue output	
4	N.C.	
5-8	GND	
9	+5 V (DDC)	
10	GND	
11	N.C.	
12	SDA (DDC)	
13	TTL HSync	
14	TTL VSync	
15	SCL (DDC)	

USB Port

Pin	Signal Name	4-pin USB Connector Type A Version 2.0
1	VCC	
2	Data-	
3	Data+	
4	GND	

Technical Support

For technical support, please contact our Technical Support team:

Tel: +49 (0)9461 950-104

Fax: +49 (0)9461 950-200

e-Mail: support@kontron.com

Make sure you have the following information on hand when you call:

- the unit part id number (P/No #),
- the serial number (S/No #) of the unit (provide the serial number found on the type label, placed on the right side of the system).

Be ready to explain the nature of your problem to the service technician.

If you have questions about Kontron Embedded Computers or our products services, you may reach us at the aforementioned numbers, or at :

Kontron Embedded Computers GmbH

Oskar-von-Miller-Str. 1

85386 Eching

Germany

Returning Defective Merchandise

Before you return any device that is not functioning correctly to Kontron Embedded Computers, please work through the following list:

1. Contact our Customer Service department to obtain an RMA number.
Fax: (+49) 8165-77 412
e-Mail: service@kontron.com
2. Ensure that you have received an RMA number from Kontron Customer Services before returning any device. Clearly write this number on the outside of the package you are returning.
3. Describe the failure that has occurred.
4. Please provide the name and telephone number of a person we can contact to obtain more information, where necessary. Where possible, please enclose all the necessary customs documents and invoices.
5. When returning a device:
 - Ensure that the device is properly packed in the original box.
 - Include a copy of the RMA form.