Benutzerhandbuch/ User's Manual

Box PC SC-75_e

User's Manual
Version 1.00

Kontron Embedded Computers GmbH

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kontron

Contents

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 technical processes described in the manual or any product characteristics set out in the manual. 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.

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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 manual.

This symbol indicates detail information about the specific product configuration.
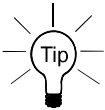
This symbol precedes helpful hints and tips for daily use.

Important Instructions

This chapter contains instructions which must be observed when using the Box PC SC-75_e.

The manufacturer's instructions provide useful information on the Box PC SC-75_e.

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 Instructions**

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

This chapter also contains information on approval and interference suppression of your SC-75_e.

Please observe the warnings and instructions on the device and in this manual.

The device has been built and tested by Kontron Embedded Computers in accordance with 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 comply with the requirements of the respective 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.

❏ The unit is not completely disconnected from the main power source by turning it off via the power button.
The unit is only completely disconnected from the main power source 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.

❏ Only devices and components which fulfill the requirements of a SELV circuit (Safety Extra Low Voltage) in accordance with EN 60950 may be connected to the interfaces of the system.

❏ In order to ensure sufficient air ventilation (circulation) for the device cooling, never cover the air intake and exhaust openings of the device. Do not put other objects on the device.

❏ All plugs on the connection cables must be screwed or locked to the housing.

❏ Do not place the device in direct sunlight, near heat sources or in a damp place. Make sure the device has adequate ventilation.

❏ The device is designed to be used in vertical (with the interfaces faced upwards) or horizontal position.

❏ Repairs may only be carried out by a person authorized by Kontron Embedded Computers.

❏ Maintenance or repair on the open device may only be carried out by qualified personnel authorized by Kontron Embedded Computers which is aware of with the associated dangers.

❏ The device may only be opened for removal and installation of the Lithium battery (for system configuration with ePCI-101 SBC board only) and PCI cards (half size) in accordance with the instructions in this manual. The device must be switched off and disconnected from the power source.

❏ Only original accessories 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.

For DC powered systems

❏ The DC-input must fulfill the SELV Requirements of EN 60950 standard.

Operation of Laser Source Devices
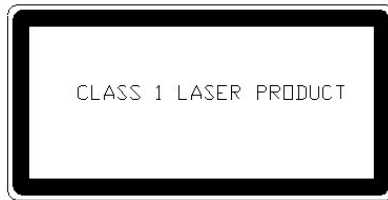
Fig. 1: Warning label on laser radiation

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 electrostatically 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 installed SBC into your SC-75_eis equipped with a lithium battery. The lithium battery of the P7 SBC may be replaced only in the factory.

For replacing of the lithium battery on the ePCI-101 SBC, please observe the instructions described in the "Replacing the Lithium Battery" chapter.

Warning
Danger of explosion if the lithium battery is incorrectly replaced.

Do not dispose of lithium batteries in domestic waste. Dispose of the battery according to the local regulations dealing with the disposal of these special materials (e.g. to the collecting points for disposal 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.

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 89/336/EWG) 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

❏ Box PC SC-75_e (corresponding to the ordered configuration)

❏ Box PC SC-75_e User's Manual

❏ AC Power Cord (for system configuration with AC power supply)

❏ DVI to VGA Adapter (for system configuration with P7 SBC only)

Type Labels and Product Identification

System Type	Product Designation	Product Configuration
SC-75_e	SC-75_e ePCI-101A	SC-75_e with ePCI-101 SBC and AC power supply
	SC-75_e ePCI-101B	SC-75_e with ePCI-101 SBC and DC power supply
	SC-75_e P7A	SC-75_e with P7 SBC and AC power supply
	SC-75_e P7B	SC-75_e with P7 SBC and DC power supply

The inspection status label and the Kontron type label (product designation, serial number) is located on the right side of the device.

Product Description

The SC-75_e expand the industrial computer product line - Box PC - developed by Kontron. The hardware of SC-75_e can be flexibly configured corresponding to the customized requirements. The small and rugged design offers excellent mechanical stability. The SC-75_e provides the demanding characteristics required for a computer that is very suitable for using in harsh industrial environment.

The system is available in two versions, depending on the installed SBC (Single Board Computer) (please refer to product identification).

i The order or the number of the SC-75_e interfaces can be different depending on the device configuration.

Both versions of the Box PC SC-75_e support expansion slots of 32 bit PCI design ,half size. Box PC configuration with P7 SBC provides a CNR slot for CNR expansion cards (option). The Box PC SC-75_e is equipped with an internal 3.5" hard disk and a 5.25" front accessible drive bay. An integrated system fan ensures a proper air flow for system cooling.

The SC-75_e system configuration with ePCI-101 SBC can optionally be equipped with an internal (on-board) CompactFlash™ drive.

The washable filter mat is inserted into a filter mat frame located on the rear side and protects the equipment interior against dust and dirt. The filter mat is accessible from the outside and can be exchanged while the system is powered-up.

The operating element consists of the On/Off power button. This is located on the front side of the device. The LED indicators comprise the power LED and hard disk activity LED. These LEDs on the front panel inform about the status of the device.

The integrated power supply can be optionally AC or DC and is accessible from the front side.

*Fig. 2: SC-75_e with ePCI-101 SBC
(AC version)*

*Fig. 2a: SC-75_e with ePCI-101 SBC
(DC version)*

*Fig. 3: SC-75_e with P7 SBC
(AC version)*

*Fig. 3a: SC-75_e with P7 SBC
(DC version)*
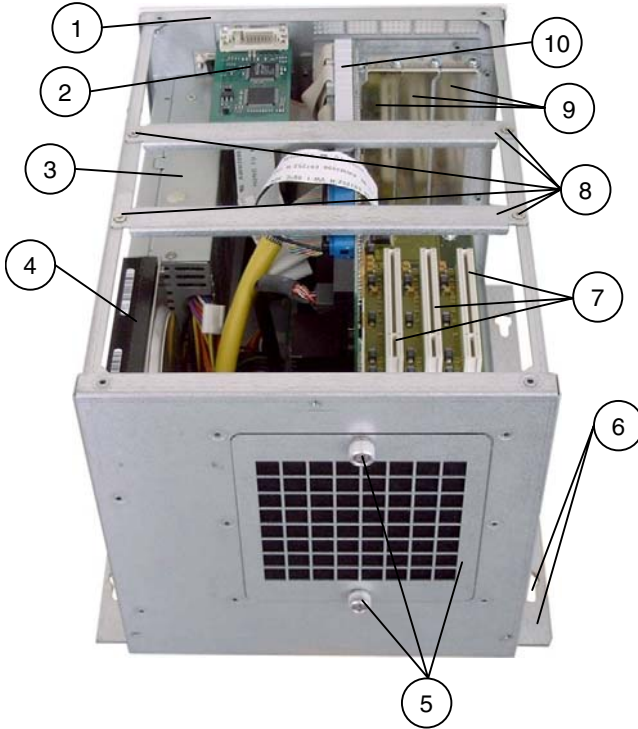
Fig. 4: SC75_e – opened (shown with ePCI-101 SBC)

1   Front panel

2   DVI module (for configuration with ePCI-101 only)

3   **P**ower **S**upply **U**nit (PSU) (AC or DC depending on the ordered configuration)

4   3.5" internal hard disk

5   Filter mat frame with knurled screws

6   Mounting bracket with mounting holes

7   Free PCI slots 32 bit, half size of the backplane

8   Cross-tie bar with fastining screws

9   Expansion card slots on the front side of the SC-75_e

10 SBC board (Single Board Computer)

☞   When powering on the system, make sure that the air intake and exhaust openings are not obstructed.

Front Side

The order or the number of the SC-75_e interfaces on the front side can be different depending on the device configuration.
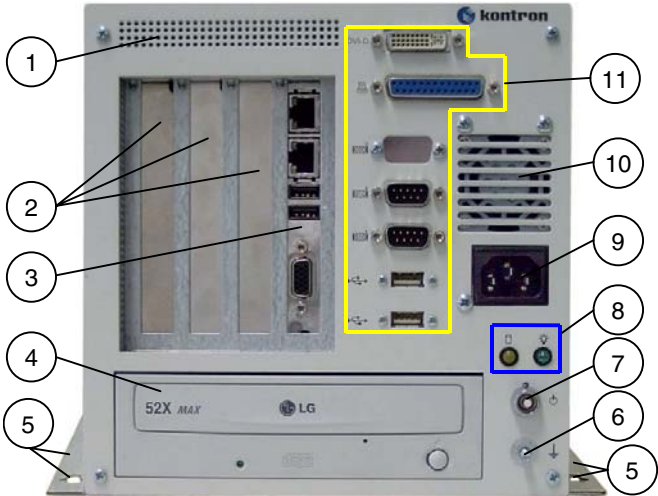
Fig. 5: Front side (version with ePCI-101 SBC and AC PSU)
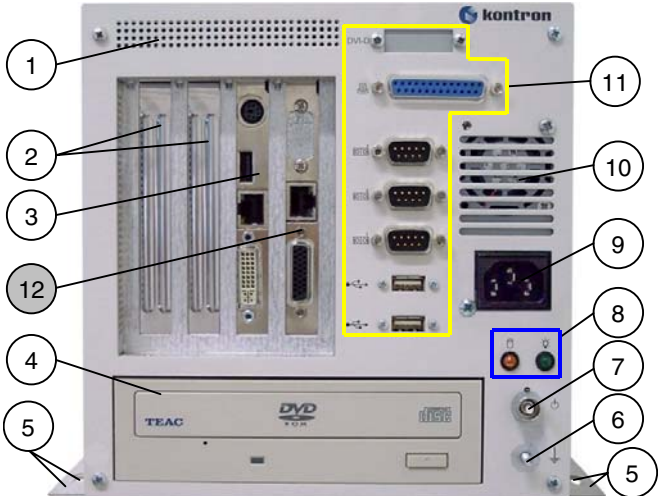
Fig. 5a: Front side (version with P7 SBC and AC PSU)

Legend for Fig. 5 and 5a:

1 Air intake openings

2 Free slots for expansion cards

3 Interfaces of the SBC-board (these interfaces are different depending on the installed SBC)

4 5.25" drive bay (shown with installed drive)

5 Mounting bracket with mounting holes

6 Ground stud

7 On/Off power button

8 LED indicators

9 AC (DC) power plug (depending on the ordered system configuration)

10 Air intake openings PSU fan

11 Additional interfaces of the SBC

12 CNR module interfaces (LAN + RIIDM) (option for SC-75_e with P7 SBC only)

External Interfaces of the ePCI-101 SBC (Slot Bracket)

	For detailed information refer to the user's manual of the ePCI-101 SBC.
$\boxed{i}$	The user's manual of the SBC board can be downloaded from our web page www.kontron.com. Search for the name of the SBC.
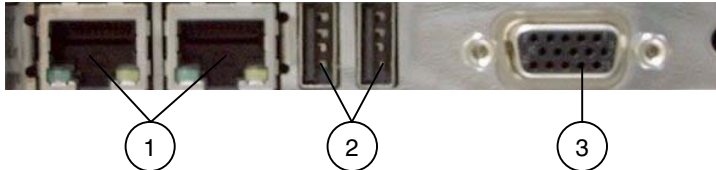
Fig. 6: Interfaces of the ePCI-101 SBC

1   2x Ethernet connector with integrated LEDs

2   2x USB (2.0/1.1) connector

3   VGA connector

Ethernet Interface Connectors

These interface connectors are provided as RJ45 sockets with integrated LEDs and support a data transfer rate of 10/100 Mbps.

USB (2.0/1.1) Interface Connectors

These connectors allow to connect USB-compatible devices to the SC-75_e.

VGA Interface Connector

An external (analog) monitor can be plugged into this interface which is provided as a 15-pin D-SUB socket.

External Interfaces of the P7 SBC (Slot Bracket)

i	For detailed information refer to the user's manual of the P7 SBC. The user's manual can be downloaded from our web page www.kontron.com. Search for the name of the SBC.
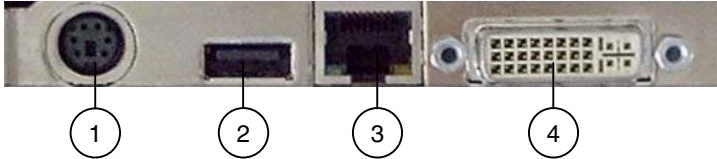
Fig. 6a: Interfaces of the P7 SBC

1   Combined PS/2 keyboard & mouse connector

2   Ethernet connector with integrated LEDs

3   USB (1.1) connector

4   DVI-I connector

Combined PS/2 Keyboard and Mouse Connector

With the provided 6-pin Mini DIN PS/2 connector (female) you can connect:

❏   a PS/2 mouse (by use of the Y adapter cable only) or

❏   a PS/2 keyboard or

❏   a PS/2 mouse and a PS/2 keyboard (by use of the Y adapter cable only).

Ethernet Interface Connector

This interface connector is provided as RJ45 socket with integrated LEDs and supports a data transfer rate of 10/100 Mbps.

USB (1.1) Interface Connector

This connector allows to connect USB 1.1-compatible devices to the SC-75_e.

DVI-I Interface Connector

The DVI-I interface (Single Link) supports both digital and analog connections. Digital devices can be connected directly to this interface of the SC-75_e but analog devices should be connected to this interface via an DVI to VGA adapter (included).

Additional Interfaces at the Front Side

i	The order or the number of the SC-75_e additional interfaces (SBC Slot interfaces excluded) on the front side can be different depending on the device configuration.

Fig. 7: Additional Interfaces of the of the SC-75_e with ePCI-101 SBC	Fig. 7a: Additional Interfaces of the of the SC-75_e with P7 SBC
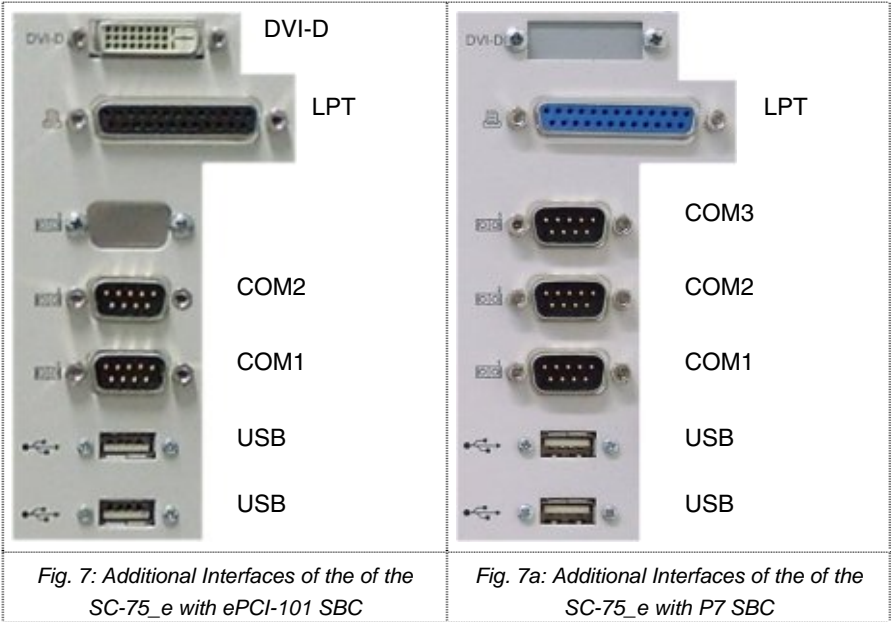
Interface	SC-75_e EPCI101A SC-75_e EPCI101B	SC-75_e P7A SC-75_e P7B	Description
2x USB	☑ USB (2.0)	☑ USB (1.1)	The USB (2.0/1.1) connectors allow to connect USB-compatible devices to the system.
COM1	☑ RS-232	☑ RS-232	These interfaces are available as 9-pin D-SUB plugs and allow to connect serial peripherals.
COM2	☑ RS-232 configurable via BIOS as: RS-422; RS-485	☑ RS-232 configurable via adapter cards as: RS-422; RS-485	
COM3	not available	☑ RS-232	
LPT	☑	☑	This connector is available as a 25-pin D SUB socket. The parallel interface LPT1 supports different modes: SPP, EPP and ECP. It is used for the connection of an external printer and can also be used for other external devices, which can be connected via a parallel port. Nonetheless, depending on the device, the manufacturer's instructions must be observed and the necessary software driver installed.
DVI-D	☑ (Option)	not available	This interface is provided as DVI-D "digital" (Single Link) interface. This interface supports digital data transfer only.

CNR Card (LAN+RIIDM) (Option for System Config. with P7 SBC only)

Your SC-75_e (configuration with P7 SBC only) can optionally be equipped with a Kontron CNR expansion card. The supported interfaces are:

❏ Ethernet interface (10/100 Mbps)

❏ RIIDM interface (allows one-cable connection for digital monitor).
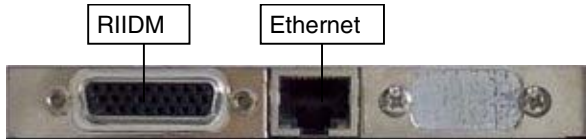
Fig. 7c: Interfaces of the CNR Card (P7 SBC only)

Externally Accessible Drive Bay

The SC-75_e comes with one externally accessible one 5.25" drive bay (shown with installed DVD drive).

Power Button

> **Power Button**
> Use this button to turn the system on or off.

Fig. 8: Power Button

Even the system is turned off via the power button, there is still a standby-voltage of 5 V on the motherboard.
The system is not completely disconnected from the main power source by turning it off via the power button.

The unit is only completely disconnected from the main power source, when the power cord is disconnected either from the power source or the unit. Therefore, the power cord and its connectors must always remain easily accessible.

LED Indicators
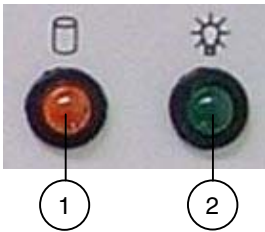
1   HDD LED (orange)

2   Power LED (green)

Fig. 9: LED indicators

The SC-75_e is equipped with two LED indicators (front side).

Power LED (green)	Lights up when the system is powered on via the power button. **Prerequisite:** The SC-75_e must be attached by means of the power cord to an appropriate power source (AC or DC) and powered on by means of the "power button".
Hard disk activity LED (orange)	Indicates hard disk activity.

Power Supply Unit

Each SC-75_e can optionally be equipped with an AC or a DC power supply.

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

System Type	Product Designation	Integrated PSU	Input
SC-75_e	SC-75_e ePCI-101A SC-75_e P7A	ATX AC PSU Wide Range 180 W	V: 100-240 Hz: 50-60 A: max. 2.0
	SC-75_e ePCI-101B SC-75_e P7B	DC PSU 150 W	V: 18 - 32 VDC A: max. 12.0

⚠ **Safety instruction for the DC PSU:**
For DC power supply please observe that the supply circuit must withstand loads minimum 50A for the 24V power supply.

Instructions for Mounting

☞ Ensure there is sufficient air circulation around the device when installing the system.
The openings for air intake and exhaust on the device must not be obstructed.

Rear Side

On the rear side of the SC-75_e are situated the air intake openings with a removable filter mat frame. Behind of the air intake openings and the filter mat is mounted the system fan. The system fan provide air for the SC-75_e interior cooling.
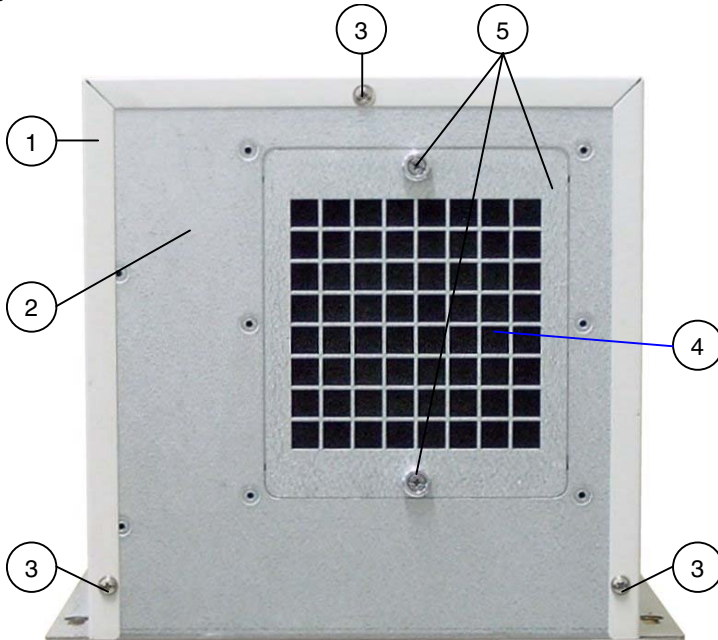
Fig. 10: SC-75_e - rear side

1   Device cover
2   SC-75_e chassis
3   Fastining screws for the cover

4   Air intake openings (shown with filter mat)
5   Removable filter mat frame with knurled screws

Filter Mat

The air intake openings are covered with the air filter mat and the corresponding air filter mat frame.

The filter mat protects your system against dust and dirt. The filter mat is changeable while the system is powered-up. (refer to the "Cleaning the Filter Mat" section).

Installed Single Board Computer (SBC) Board

Depending on the ordered system configuration, your SC-75_e accommodates either an ePCI-101 or a P7 SBC board.

☞ Refer to the information and technical data in the user's manual of the installed SBC board.

The user's manual of the installed board can be downloaded from our web page www.kontron.com.
Search for the name of the installed CPU board.

System Identification	Integrated Board	Board Type
SC-75_e ePCI-101A	ePCI-101	Single Board Computer
SC-75_e ePCI-101B	ePCI-101	Single Board Computer
SC-75_e P7A	P7	Single Board Computer
SC-75_e P7B	P7	Single Board Computer

Installed Backplane

The backplane is fixed-mounted in the PC-Box SC75_e. You can expand your system according to the expansion card slots of the backplane. Depending on your system configuration, and corresponding installed backplane, following expansion slots are present:

System Identification	Expansion Card Slot
SC-75_e ePCI-101A or B	3x 32 bit @ 33MHz PCI slot,
SC-75_e P7A or B	2x 32 bit @ 33MHz PCI slot,
	1x CNR slot (for Kontron CNR cards only)
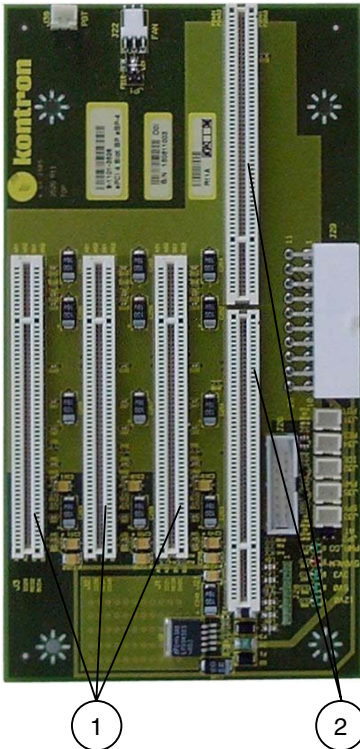
Maximal supported Bus speeds

1   3x 32 bit @ 33MHz PCI slot, 5 V keying

2   1x PICMG 1.2 SBC board slot (half size)

Fig. 11: Backplane (for system configuration with ePCI-101 SBC board)
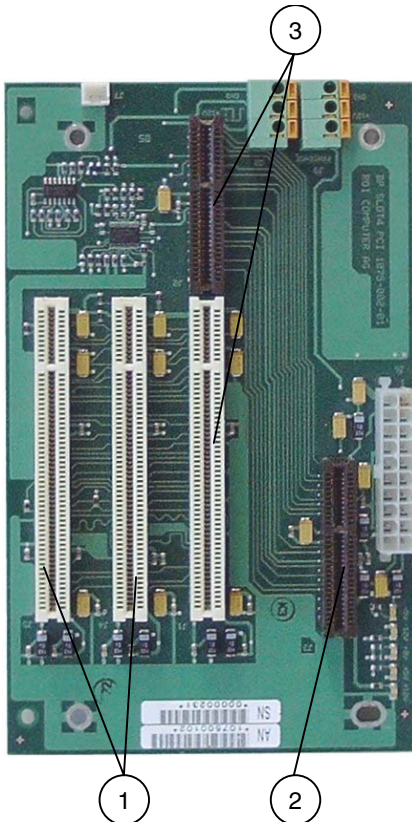
Maximal supported Bus speeds

1   2x 32 bit @ 33MHz PCI slot,
    5 V keying

2   1x PCNR SBC board slot
    (half size only)

3   1x CNR slot (for Kontron
    CNR cards only)

Fig. 11a: Backplane (for system configuration with P7 SBC board)

☞   To expand your system with additional cards, please observe the
     power consumption specification specified in the "Power
     Specifications" chapter and that every additional card does not
     exceed 25 W power consumption.

Starting Up

The AC or DC power socket is located on the front side of the system.

☞   The voltage of the power source must correspond to the
           voltage value on the type label.

Power Cord Connection

| AC Power Plug | DC Power Plug |
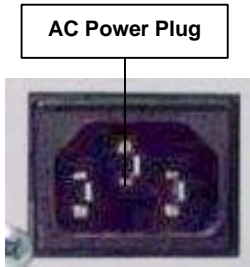
Fig. 12: AC power connection   *Fig. 12a: DC power connection*
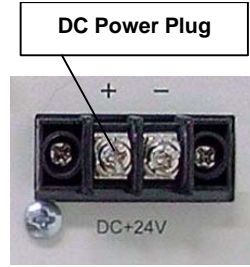
AC-Connection

1. Plug the AC power cord into the system's AC power socket (refer to *fig. 12*).

2. Plug the other end of the AC power cord into a corresponding power outlet.

⚠   Use a power cord suitable for the power supply in your country.

           Make sure that the power supply (power outlet) is properly
           grounded and that the power cord is in perfect condition without
           any visible damage. An ungrounded power supply is not
           permissible.

3. Turn the device On via the On/Off button of the unit located at the front side of
the system.

DC-Connection

☞   The length of the DC connecting wires may not exceed 10 m.
        Strip and twist the connecting wire-ends but do not tin it the with
        solder.

1. Loosen enough the two slotted screws of the provided terminal of the DC
   power supply, so that you can insert the ends of the connecting wires. Pay
   attention to the polarity of the connections (see *fig. 12a*).

2. Tighten the slotted screw firmly.

3. Connect the other end of the DC power cord into a corresponding outlet of the
   DC-power source.

4. Turn the device on via the On/Off button of the unit located at the front side of
   the system.

Operating System and Hardware Component Drivers

The SC-75_e can optionally be supplied with or without a pre- installed operating system.

If you have ordered your SC-75_e with a pre- installed operating system, all drivers are installed, corresponding to the ordered computer configuration (optional hardware components). Your computer is fully functional, when you switch it on for the first time.

If you have ordered your SC-75_e without pre- installed operating system, you have to install the operating system and the corresponding drivers for the ordered computer configuration (optional hardware components).

The needed drivers can be downloaded from our web page: www.kontron.com. Search for the product name.

Consider the manufacturer specifications of the operating system and the integrated hardware components.

To expand your system with additional cards, please observe the power consumption specification specified in the "Power Specifications" chapter and that every additional card does not exceed 25 W power consumption.

Accessing Internal Components

This section contains important information that you must read before accessing the internal components. You must follow these procedures properly when installing, removing or handling any board.

Please consider following instruction when you install (or remove) expansion cards.

The installation and removal of expansion cards have to be carried-out only by qualified specialist personnel in accordance with the description in this manual.

Before removing the cover to gain access to the internal components, the system must be powered-down and the power cord has to be disconnected from the power source.

To expand your system with additional cards, please observe the power consumption specification specified in the "Power Specifications" chapter and that each additional card does not exceed 25 W power consumption.

Please observe the safety instruction for handling assemblies with static sensitive device.
Failure to take heed of this warning instruction can result in damage to the device.

Please consult the documentation provided by the manufacturer of the expansion card for instructions before attempting to install/remove an expansion card into/from the SC-75_e.

Installing/Removing the Expansion Cards

The expansion cards for the performance extension of your computer can be installed into the free backplane slots. Please consider following instruction when you install (or remove) expansion cards.

Please adhere to the description in this manual when opening the unit and installing/removing expansion cards.
Before removing the cover to gain access to the internal components, the system must be powered down and the power cord has to be disconnected from the power source.
Please refer to the ESD safety procedures for handling assemblies with static sensitive devices.
Failure to take heed of this warning instruction can result in damage to the device.

To install (or remove) an expansion card, follow these steps:

1. Turn off your system and disconnect the power cord from the power source.

2. Remove the three screws on the rear side of the unit that secure the cover and retain these for later use.

3. Lift the cover off.
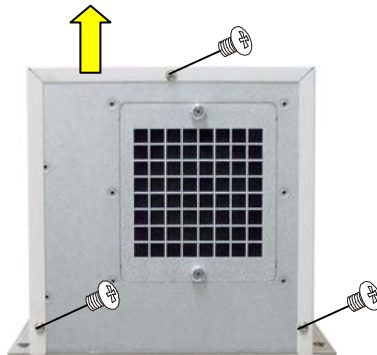
Fig. 13: Removing the screws on the rear side that secure the cover

4. Unscrew the four screws that secure the cross-tie bars on the top side, remove the cross-tie bars and retain these for later use.
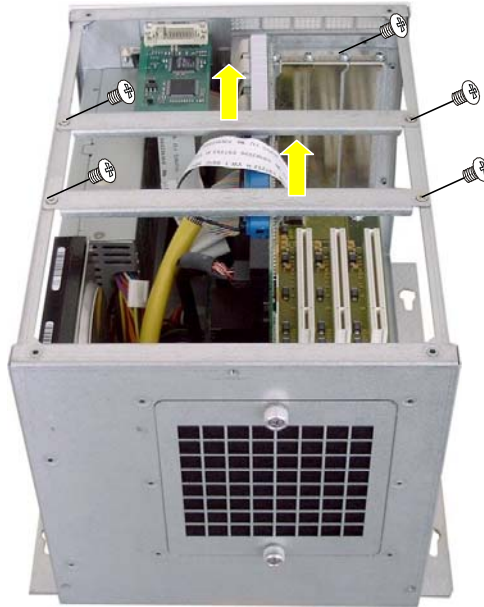
Fig. 14: Removing the cross-tie bars and the slot bracket

5. To remove/install an expansion card, you have to remove the corresponding expansion card/slot bracket. Loosen the corresponding fastening screw on the internal front side, which secures the slot bracket and remove it. Retain the screws for later use

6. Insert/remove the expansion card into/from the slot of the backplane.

7. If you have removed an expansion card, re-insert a slot bracket.

8. Secure the bracket (slot bracket or card bracket) to the chassis with the fastening screw.

9. Replace the cross-tie bars and secure these with the corresponding retaining screws.

10. Replace the cover and secure it with the corresponding retaining screws.

Maintenance and Prevention

Kontron Embedded Computers systems only require minimal maintenance and care to keep them operating correctly.

❏ Occasionally wipe the system with a soft dry cloth.
❏ Remove persistent dirt by use of a soft, slightly damp cloth (only use a mild detergent).
❏ Clean the air filter mat regularly.

Cleaning the Filter Mat

Cleaning frequency depends on the operating environment. If the filter mat is too dirty, the SC-75_e can overheat or at least warm up excessively. Therefore we recommend to clean the mat as often as possible depending on the degree of pollution. The filter mat which is on rear side accessible, can be changed even if the system is powered up.

1 Screws that secure the cover

2 Filter mat frame with knurled screws

3 Air filter mat

4 Rear side of the SC-75_e
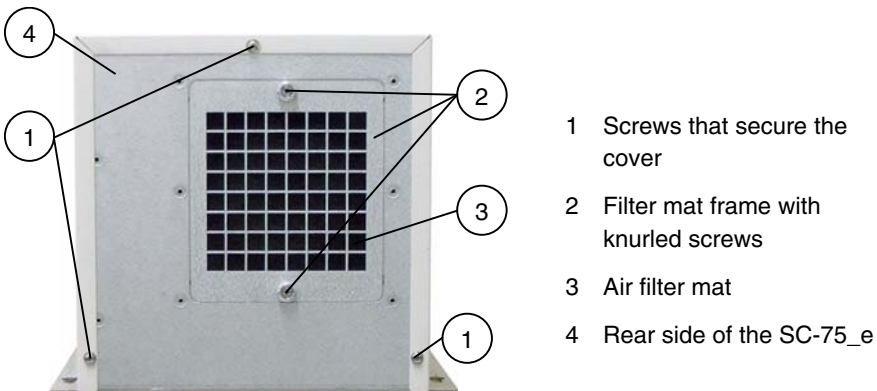
Fig. 15: Location of the air filter mat

To remove the air filter mat located at the rear of the system, proceed as follows:

1. Loosen the knurled screws of the filter mat frame that secure it to the chassis and take it off.

2. Remove the dirty filter mat.

3. To clean the filter mat:

❏ Rinse in water (up to approx. 40°C/104°F; you may add a mild commercial detergent).

❏ It is also possible to beat it, suction clean it or blast it with warm compressed air.

❏ If the filter is soiled with greasy dust, you should rinse it with warm water with degreaser added. Do not clean the air filter mat with a piercing jet of water or wring it out.

4. After cleaning and drying the filter mat, put it back onto the cassis. Replace the filter mat frame back to the rear side of the chassis.

5. Tighten the knurled screws of the filter mat frame.
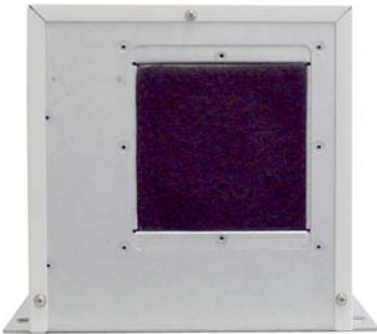
Fig. 15a: SC-75_e without filter mat frame   *Fig. 15b: SC-75_e without filter mat*

Fig. 15c: Filter mat frame

Replacing the Lithium Battery

Replacing the Lithium Battery for SC-75_e with ePCI-101 SBC

The integrated ePCI-101 SBC board of your system is equipped with a lithium battery. To replace the battery, please proceed as follows:

1. Open the unit as described in the "Installing/Removing the Expansion Cards" chapter (step 1-5).

2. If your system is expanded with expansion cards, please remove at first the cards and the corresponding data cables, to have access to the lithium battery.

3. Remove the battery by pressing outwards the ejector spring.

4. Place the new battery into the socket.

5. Make sure that you insert the battery the right way around. The plus pole must be on the top!

6. The lithium battery must be replaced with an identical battery or a battery type recommended by Kontron Embedded Computers.

7. Reinstall the removed expansion cards and reconnect the removed data cable.

8. Close the Unit as described in chapter "Installing/Removing the Expansion Cards" (step 6-10).

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).

Replacing the Lithium Battery for SC-75_e with P7 SBC Board

The integrated P7 SBC board of your system is equipped with a lithium battery. The lithium battery can be replaced only in the factory (the battery is soldered on the SBC board).

Installation Instructions

Important Instructions!

Ensure there is sufficient air circulation around the device when installing the SC-75_e. The ventilation openings must not be obstructed.

Leave at least 5 cm of space free around the SC-75_e to prevent the device from possibly overheating!

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

The type label is located on the right side of the SC-75_e.
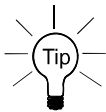
Leave sufficient space at the interface side for connecting the peripheral devices.

Desk / Wall Mounting

The Box PC SC-75_e is designed be operated in vertical (with the interfaces faced upwards) or in horizontal position.

If you attach the Box PC SC-75_e to a desk/wall, on the mounting bracket on the bottom side of the unit are available four elongated holes.

First prepare the four drillings (Ø 4 mm) according to the hole pattern. Fasten the Box PC SC-75_e onto the desk/wall with four M4 metric screws (not included in the package).
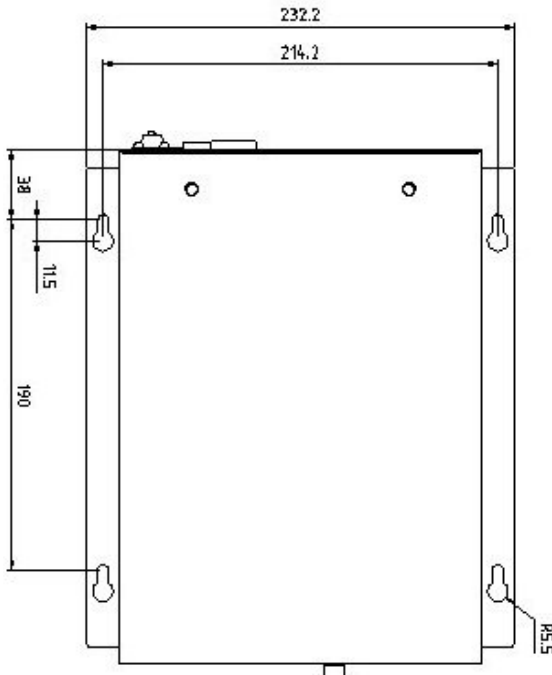
Fig. 16: Hole pattern for the Box PC SC-75_e
(all values in mm)

☞   When mounting the system, make sure that the air intake and exhaust openings are not obstructed.

Technical Data

System Type	SC-75_e EPCI101A SC-75_e EPCI101B	SC-75_e P7A SC-75_e P7B
Processor	Intel® Celeron™ M 1.3 GHz or Intel® Pentium® M 1.8 GHz	Intel® Celeron™ 1.2 GHz or Intel® Pentium® III 1.26 GHz
Lithium Battery	Type: CR2032; 3.0 V; 0.22Ah; LIXING	LTC-7PN 3.5V, 750mAh
External Interfaces of the installed SBC (accessible from the front side)	2x Ethernet (RJ45) 2x USB 2.0/1.1 1x VGA	1x PS/2 Keyboard & Mouse 1x Ethernet (RJ45) 1x USB 1.1 1x DVI-I (Single Link)
Additional Interfaces (accessible from the front side)	2x USB (2.0/1.1) 1x COM1(RS232) 1x COM2 (RS232) config. via BIOS as RS422, RS485	2x USB (1.1) 3x COM (RS232) config. via Kontron adapter card as RS422, RS485
	1x LPT	
Additional Interfaces (Option) (accessible from the front side)	1x DVI-D (Single Link)	of CNR Expansion Card: 1x Ethernet (RJ45) 1x RIIDM
Free Expansion Slots	3x PCI 32 bit @ 33MHz	2x PCI 32 bit @ 33MHz
Hard Disk (internal)	1x 3.5"	
Drive Bay	1x CompactFlash™ (internal, on-board)	
	1x 5.25" (front accessible)	
Operating Elements (on the front panel)	Power button	
LED Indicators (on the front panel)	Power LED HDD LED	
AC or **DC Power Plug**	on the rear panel	

Power Specifications

Power Specification (max. power value for additional customised applications) (only for SC-75_e with ePCI101-SBC Board) (for SC-75_e with P7 SBC Board: tbd)	Total power of all additional customised applications	AC Version: max.: 175 W
		DC Version: max.: 135 W
	Power consumption pro slot (PCI)	max.: 25W
	Power consumption at +3.3 VDC +5 VDC and +12 VDC (combined)	AC Version: max.: 61 W
		DC Version: max.: 85 W

Electrical Specifications

System Type	Product Designation	Integrated PSU	Input
SC-75_e	SC-75_e ePCI-101A SC-75_e P7A	ATX AC PSU Wide Range 180 W	V: 100-240 Hz: 50-60 A: max. 2.0
	SC-75_e ePCI-101B SC-75_e P7B	DC PSU 150 W	V: 18 - 32 VDC A: max. 12.0

Mechanical Specifications

Dimensions	
Height	201 mm (7.9")
Width	197 mm (7.75") 232 mm (9.13") with mounting plate
Depth	278 mm (10.95")
Weight (without packaging)	7.2 kg (15.87 lbs.)
Housing	Zinc-coated steel, RAL9002 front panel RAL9002

Environmental Specifications

Thermal Management	1x power supply fan 1x system fan CPU fan
Operating Temperature / relative Humidity	0 … +50°C / 5 - 90 % not condensing (32 … 122 °F / 5 - 90% not condensing)
Storage / Transit Temp. / relative Humidity	-20 … +70 °C / 0 - 95 % not condensing (-4 … 158 °F / 0 - 95 % not condensing)
Operating Altitude	3,048 m (10,000 ft)
Storage / Transit Altitude	10,000 m (32,810 ft)
Operating Shock	15 G, 11 ms duration, half sine
Storage / Transit Shock	30 G, 11 ms duration, half sine
Operating Vibration	10 – 500 Hz, 1.0 G
Storage / Transit Vibration	10 – 500 Hz, 2.0 G
Acoustic Noise	<45 dB at 1 m in front of the system, full load

CE Directives and Standards

CE Directives	
Low Voltage Directive (Electrical Safety)	73/23/EEC modified by 93/68/EEC
EMC Directive	89/336/EEC + 92/31/EC + 2004/108/EC
CE Marking	93/68/EEC

Electrical Safety	Standards
EUROPE	EN 60950-1: 2001
U.S.A.	to meet UL 60950-1: 2003, First Edition

EMC	Standards
EUROPE	Generic emission standard for industrial environments (Emission): EN 61000-6-4: 2001 Generic standards - Immunity for industrial environments (Immunity): EN 61000-6-2: 2001
U.S.A.	FCC 47 CFR Part 15, Class A

Technical Appendix - Interfaces

The following tables contain the plug assignments for the external connections of the Box PC SC-75_e.

Low-active signals are indicated by a minus sign.
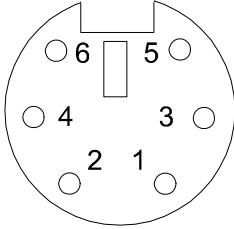
Serial Port (COM1, COM2)

Pin	Signal Name	9-pin D-SUB Plug (male)
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)	
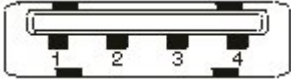
Parallel Port (LPT)

Pin	Signal Name	25-pin D-SUB Socket (female)
1	–STROBE	
2	DATA0	
3	DATA1	
4	DATA2	
5	DATA3	
6	DATA4	
7	DATA5	
8	DATA6	
9	DATA7	
10	–ACKN	
11	BUSY	
12	PE	
13	SELECT	
14	–AUTOFD	
15	–ERROR	
16	–INIT	
17	–SLCTIN	
18–25	GND	

PS/2 Keyboard and Mouse Connector

Pin	Signal Name	6-pin MiniDIN Socket
1	Keyboard data	
2	Mouse data	
3	GND	
4	+5 V	
5	Keyboard clock	
6	Mouse clock	
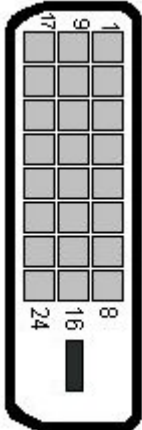
USB Port

Pin	Signal Name	4-pin USB Socket Type A Version 2.0/1.1
1	VCC	
2	Data-	
3	Data+	
4	GND	

VGA Port

Pin	Signal Name	15-pin D-SUB Socket (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)	

DVI-D - Connector (Single Link)

Pin	Signal Name	Description	DVI-D - Connector (female)
1	TMDS2–	Differential TMDS Data 2–	
2	TMDS2+	Differential TMDS Data 2+	
3	GND	TMDS Shield	
4–5	NC		
6	DVI_SCL	DDC EDID data clock	
7	DVI_SDA	DDC EDID data	
8	DVI_VS	Analog VSYNC	
9	TMDS1–	Differential TMDS Data 1–	
10	TMDS1+	Differential TMDS Data 1+	
11	GND	TMDS Shield	
12–13	NC		
14	DVI_5V	5V / 100mA Power Supply	
15	GND	Ground	
16	DISPDET	Hot Plug Detection	
17	TMDS0–	Differential TMDS Data 0–	
18	TMDS0+	Differential TMDS Data 0+	
19	GND	TMDS Shield	
20–21	NC		
22	GND	TMDS Shield	
23	TMDSSCL–	Differential TMDS Clock–	
24	TMDSSCL+	Differential TMDS Clock +	

DVI-I Connector (Single Link)

Pin	Signal Name	Description	DVI-I - Connector (female)
1	TMDS2–	Differential TMDS Data 2–	
2	TMDS2–	Differential TMDS Data 2+	
3	GND	TMDS Shield	
4–5	NC		
6	DVI_SCL	DDC EDID data clock	
7	DVI_SDA	DDC EDID data	
8	DVI_VS	Analog VSYNC	
9	TMDS1–	Differential TMDS Data 1–	
10	TMDS1+	Differential TMDS Data 1+	
11	GND	TMDS Shield	
12–13	NC		
14	DVI_5V	5V / 100mA Power Supply	
15	GND	Ground	
16	DISPDET	Hot Plug Detection	
17	TMDS0–	Differential TMDS Data 0–	
18	TMDS0+	Differential TMDS Data 0+	
19	GND	TMDS Shield	
20–21	NC		
22	GND	TMDS Shield	
23	TMDSSCL–	Differential TMDS Clock–	
24	TMDSSCL+	Differential TMDS Clock +	
C1	DVI_R	Analog red	
C2	DVI_G	Analog green	
C3	DVI_B	Analog blue	
C4	DVI_HS	Analog HSYNC	
C5–C6	GND	Ground	

Technical Support

For technical support, please contact our Technical Support department.

German headquarter Hotline:
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 #),
• and 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 and services, you may reach us at the aforementioned numbers, or at:
www.kontron.com or by writing to:

Kontron Embedded Computers GmbH
Oskar-von-Miller-Str. 1

85386 Eching
Germany

Returning Defective Merchandise

Before returning any merchandise, please:

1. Contact our Service and request an
   RMA number (Return Material Authorization) by :
   Fax: (+49) 8165-77 412
   E-mail: service@kontron.com

2. Make sure that you receive an RMA number from Kontron Embedded
   Computers-Service before returning any merchandise. Clearly write or mark
   this number on the outside of the package you are returning.

3. Describe the device failure behavior.

4. When returning goods, include the name and telephone number of a person
   whom we can contact for further explanations if necessary. Where applicable,
   always include all duty papers and invoice(s) associated with the item(s) in
   question.

5. When returning a unit.
   • Ensure that the unit is properly packed in the original box.
   • Include a copy of the RMA form.