# USER GUIDE



# KISS 2U V3

KISS 2U V3 CFL KISS 2U V3 PCI763

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# ► KISS 2U V3 - USER GUIDE

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### Intended Use

This product, sold by Kontron, is also intended for the use in harsh industrial environments. The product can operate in a temperature range from 0°C to plus 50°C; the storage elements can withstand temperatures from minus 20°C to plus 70°C, and a humidity of 10 to 93 percent does not affect the function of the Product. This makes it particularly suitable for use in industrial automation, process control, high-end image processing and for SCADA/MES applications. This product can be installed in tower, desktop and rackmount environments, as more described in this user manual. You must comply with all product specifications stated in the product documentation and this user manual. If you intend, to incorporated the product into any total systems or applications, please carry out sufficient, compatibility and functions tests prior to any use or resale.

THIS PRODUCT IS NOT DESIGNED, MANUFACTURED OR INTENDED FOR USE OR RESALE FOR THE OPERATION OF APPLICATION IN A HAZARDOUS ENVIRONMENT, OR REQUIRING FAIL-SAFE PERFORMANCE, OR IN WHICH THE FAILURE OF PRODUCTS COULD LEAD DIRECTLY TO DEATH, PERSONAL INJURY, OR SEVERE PHYSICAL OR ENVIRONMENTAL DAMAGE (COLLECTIVELY "HIGH RISK APPLICATIONS").

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### **Revision History**

Revision	Brief Description of Changes	Date of Issue	Author/ Editor
1.0	Initial version	2019-Feb-13	CW

### Terms and Conditions

Kontron warrants products in accordance with defined regional warranty periods. For more information about warranty compliance and conformity, and the warranty period in your region, visit <a href="http://www.kontron.com/terms-and-conditions">http://www.kontron.com/terms-and-conditions</a>.

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For contact information, refer to the corporate offices contact information on the last page of this user guide or visit our website <u>CONTACT US</u>.

### **Customer Support**

Find Kontron contacts by visiting: <a href="http://www.kontron.com/support">http://www.kontron.com/support</a>.

### **Customer Service**

As a trusted technology innovator and global solutions provider, Kontron extends its embedded market strengths into a services portfolio allowing companies to break the barriers of traditional product lifecycles. Proven product expertise coupled with collaborative and highly-experienced support enables Kontron to provide exceptional peace of mind to build and maintain successful products.

For more details on Kontron's service offerings such as: enhanced repair services, extended warranty, Kontron training academy, and more visit <a href="http://www.kontron.com/support-and-services/services">http://www.kontron.com/support-and-services/services</a>.

#### **Customer Comments**

If you have any difficulties using this user guide, discover an error, or just want to provide some feedback, contact Kontron support. Detail any errors you find. We will correct the errors or problems as soon as possible and post the revised user guide on our website.

### **Symbols**

The following symbols may be used in this user guide

### **ADANGER**

DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.

### **▲**WARNING

WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

### NOTICE

NOTICE indicates a property damage message.

### **A**CAUTION

CAUTION indicates a hazardous situation that, if not avoided, may result in minor or moderate injury.



#### Electric Shock!

This symbol and title warn of hazards due to electrical shocks (> 60 V) when touching products or parts of products. Failure to observe the precautions indicated and/or prescribed by the law may endanger your life/health and/or result in damage to your material.



### **ESD Sensitive Device!**

This symbol and title inform that the electronic products and their components are sensitive to static electricity. Care must therefore be taken during all handling operations and inspections of this product in order to ensure product integrity at all times.



#### **HOT Surface!**

Do NOT touch! Allow to cool before servicing.



#### Laser!

This symbol inform of the risk of exposure to laser beam and light emitting devices (LEDs) from an electrical device. Eye protection per manufacturer notice shall review before servicing.



This symbol indicates general information about the product and the user guide.

This symbol also indicates detail information about the specific product configuration.



This symbol precedes helpful hints and tips for daily use.

### For Your Safety

Your new Kontron product was developed and tested carefully to provide all features necessary to ensure its compliance with electrical safety requirements. It was also designed for a long fault-free life. However, the life expectancy of your product can be drastically reduced by improper treatment during unpacking and installation. Therefore, in the interest of your own safety and of the correct operation of your new Kontron product, you are requested to conform with the following guidelines.

### **High Voltage Safety Instructions**

As a precaution and in case of danger, the power connector must be easily accessible. The power connector is the product's main disconnect device.

### **A**CAUTION

#### Warning

All operations on this product must be carried out by sufficiently skilled personnel only.

#### **ACAUTION**

#### Electric Shock!



Before installing a non-hot-swappable Kontron product into a system always ensure that your mains power is switched off. This also applies to the installation of piggybacks. Serious electrical shock hazards can exist during all installation, repair, and maintenance operations on this product. Therefore, always unplug the power cable and any other cables that provide external voltages before performing any work on this product.

Earth ground connection to vehicle's chassis or a central grounding point shall remain connected. The earth ground cable shall be the last cable to be disconnected or the first cable to be connected when performing installation or removal procedures on this product.

### Special Handling and Unpacking Instruction

#### NOTICE

### **ESD Sensitive Device!**



Electronic products and their components are sensitive to static electricity. Therefore, care must be taken during all handling operations and inspections of this product, in order to ensure product integrity at all times.

Do not handle this product out of its protective enclosure while it is not used for operational purposes unless it is otherwise protected.

Whenever possible, unpack or pack this product only at EOS/ESD safe work stations. Where a safe work station is not guaranteed, it is important for the user to be electrically discharged before touching the product with his/her hands or tools. This is most easily done by touching a metal part of your system housing.

It is particularly important to observe standard anti-static precautions when changing piggybacks, ROM devices, jumper settings etc. If the product contains batteries for RTC or memory backup, ensure that the product is not placed on conductive surfaces, including anti-static plastics or sponges. They can cause short circuits and damage the batteries or conductive circuits on the product.

### **Lithium Battery Precautions**

If your product is equipped with a lithium battery, take the following precautions when replacing the battery.

### **AWARNING**

#### Danger of explosion if the battery is replaced incorrectly.

- Replace only with same or equivalent battery type recommended by the manufacturer.
- Dispose of used batteries according to the manufacturer's instructions.

### General Instructions on Usage

In order to maintain Kontron's product warranty, this product must not be altered or modified in any way. Changes or modifications to the product, that are not explicitly approved by Kontron and described in this user guide or received from Kontron Support as a special handling instruction, will void your warranty.

Install the product only in or connected to systems that fulfill all necessary technical and specific environmental requirements. This also applies to the operational temperature range of the specific product version that must not be exceeded.

In performing all necessary installation and application operations, only follow the instructions supplied within this user guide.

Keep all the original packaging material for future storage or warranty shipments. If it is necessary to store or ship the product then re-pack the product in the same manner as the product was delivered.

Special care is necessary when handling or unpacking the product. Refer to any special handling and unpacking instructions within this user guide.

### Quality and Environmental Management

Kontron aims to deliver reliable high-end products designed and built for quality, and aims to complying with environmental laws, regulations, and other environmentally oriented requirements. For more information regarding Kontron's quality and environmental responsibilities, visit <a href="http://www.kontron.com/about-kontron/corporate-responsibility/quality-management">http://www.kontron.com/about-kontron/corporate-responsibility/quality-management</a>.

### Disposal and Recycling

Kontron's products are manufactured to satisfy environmental protection requirements where possible. Many of the components used are capable of being recycled. Final disposal of this product after its service life must be accomplished in accordance with applicable country, state, or local laws or regulations.

### **WEEE Compliance**

The Waste Electrical and Electronic Equipment (WEEE) Directive aims to:

- Reduce waste arising from electrical and electronic equipment (EEE)
- Make producers of EEE responsible for the environmental impact of their products, especially when the product become waste
- Encourage separate collection and subsequent treatment, reuse, recovery, recycling and sound environmental disposal of EEE
- Improve the environmental performance of all those involved during the lifecycle of EEE



Environmental protection is a high priority with Kontron. Kontron follows the WEEE directive.

# **Table of Contents**

Symbols	6
For Your Safety	
High Voltage Safety Instructions	7
Special Handling and Unpacking Instruction	
Lithium Battery Precautions	
General Instructions on Usage	8
Quality and Environmental Management	8
Disposal and Recycling	8
WEEE Compliance	8
Table of Contents	9
List of Tables	
List of Figures	
1/ General Safety Instructions for IT Equipment	13
1.1. Operation of Laser Source Devices	14
1.2. Electrostatic Discharge (ESD)	
1.2.1. Grounding Methods	
1.3. Instructions for the Lithium Battery	15
2/ Introduction	16
3/ Scope of Delivery	
3.1. Accessories and Spare Parts	17
3.2. Shipment, Packaging and Unpacking	
3.3. Type Label	
4/ Product Description	18
4.1. Front Side	
4.1.1. USB Ports	
4.1.2. Controls and Indicators	21
4.1.3. Front Access Panel	
4.1.4. Fan Assembly	23
4.1.5. Filter Pad and Filter Pad Holder	
4.1.6. Drive Bays	24
4.2. Rear Side	25
4.2.1. Interfaces on the Rear Side	
4.2.2. Additional Serial Ports	28
4.2.3. Power Supply Unit	28
4.2.4. Potential Equalization Stud	28
4.3. Sides (Left and Right)	29
4.4. Cover	
4.5. System Configuration	31
4.5.1. System Configuration with Mainboard and Low Profile Expansion Cards	31
4.5.2. System Configuration with Mainboard and Riser Card Expansion Cards	
4.5.3. System Configuration with SBC	
5/ System Extension	
5.1. Mass Storage Options	
5.2. Expansion Cards	
6/ Thermal Considerations	
6.1. Active Cooling	36

6.2. Minimum System Clearance	36
6.3. Third Party Components	36
7/ Assembly	
7.1. Opening and Closing the Cover	37
7.2. Accessing Internal Components	39
7.2.1. Installing and Removing Riser Card and SBC Expansion Cards	39
7.2.2. Installing and Removing Low Profile Expansion Cards	40
8/ Installation	41
8.1. Installing the Rubber Feet	
8.2. Removing the Handle Brackets	42
8.3. Removing the Front Access Panel and Front Access Panel Side-Plates	
8.4. Installing as a Desktop	
8.5. Installing in a 19" Industrial Rack	
8.6. Installing Slide Rails (Option)	
9/ Starting Up	
9.1. Connecting the Power Connection	
9.2. Operating System and Hardware Component Drivers	
10/ Maintenance and Prevention	
10.1. Cleaning the Filter Pad	
10.2. Replacing the Fan Assembly	
10.3. Replacing the Lithium Battery	
11/ Technical Data	
11.1. Block Diagrams	
11.1.1. Block Diagram KISS 2U V3 CFL	
11.1.2. Block KISS 2U V3 PCI763	
11.2. Technical Specification	
11.3. Mechanical Specification	
11.4. Environmental Specification	
11.5. Directives and Standards	
12/ Standard Interfaces- Pin Assignments	
12.1. Keyboard Connector Pin Assignment	
12.2. PS/2 Mouse Connector Pin Assignment	
12.3. USB 2.0 Pin Assignment	
12.4. Display Port Pin Assignment	
12.5. COM 1 Pin Assignment	
12.6. DVI_D Connector Pin Assignment	
12.7. DVI-I Connector Pin Assignment	
12.8. LAN Connector Pin Assignment	
12.9. USB 3.0 and USB 3.1 (Gen1/Gen2) Type A Pin Assignment	
12.10. Audio Jack Pin Assignment	
13/ Technical Support	
13.1. Returning Defective Merchandise	
14/ Storage and Transportation	
14.1. Storage	
14.2. Transportation	
15/ Warranty	
15.1. Limitation/Exemption from Warranty Obligation	
Appendix A: List of Acronyms	
About Kontron	67

# List of Tables

Table 1: Scope of delivery	
Table 2: Accessories and spares parts	
Table 3: Power LED and HDD LED activity	
Table 4: Drive bays	
Table 5: Mass storage devices	
Table 6: Expansion slots	
Table 7: List of Acronyms	66
List of Figures	
Figure 1: Laser radiation warning label	
Figure 2: Type label example	
Figure 3: Rackmount variant (closed front access panel)	18
Figure 4: Desktop variant (closed front access panel)	18
Figure 5: Rackmount variant (opened front access panel)	18
Figure 6: Desktop variant (opened front access panel)	
Figure 7: Front side with front access panel closed	
Figure 8: Handle bracket with fastening screws	19
Figure 9: Front side with front access panel open	20
Figure 10: Power button and USB 2.0 ports	
Figure 11: LED indicators	
Figure 12: Fan assembly	
Figure 13: Rear side with micro-ATX mainboard with riser card	
Figure 14: Rear side with micro-ATX mainboard with low profile cards	
Figure 15: Rear side with SBC	
Figure 16: External mainboard interface panel KISS 2U V3 CFL	
Figure 17: External mainboard interface panel KISS 2U V3 PCI763	
Figure 18: PSU 400W AC	
Figure 19: Left side	
Figure 20: Right side	
Figure 21: Cover underside	
Figure 22: Example of KISS 2U V3 configuration with mainboard and low profile expansion cards	
Figure 23: Example of KISS 2U V3 configuration with mainboard and riser expansion cards	
Figure 24: Example of KISS 2U V3 configuration with SBC	
Figure 25: PCIe/PCI expansion slots type and location – PICMG 1.3 backplane SBC variant Figure 26: Loosening knurled screw on the front side	
Figure 27: Loosening knurled screw on the front side	
Figure 28: Pull and release the cover	
Figure 29: Removing the cover	
Figure 30: Pulled-out card cage for SBC and mainboard with riser card	
Figure 31: Front access panel side-plate and handle bracket	
Figure 32: Slide rail inner part fastened to chassis	
Figure 33: Slide rail in pulled-out position	
Figure 34: Slide rail in pushed-in position	
Figure 35: Assembling the slide rails in an industrial rack cabinet	
Figure 36: Input power socket	
Figure 37: Front side with filter pad holder	
Figure 38: Front side without filter pad	
Figure 39: Filter pad holder (without filter pad)	
Figure 40: Filter pad holder (with filter pad)	
Figure 41: Filter pad	
Figure 42: Removing the fan assembly	
-	

Figure 43: Fan compartment (without fan assembly)	. 52
Figure 44: Block diagram KISS 2U V3 CFL	. 53
Figure 45: Block diagram KISS 2U V3 PCI763	.54

# 1/ General Safety Instructions for IT Equipment

### **▲**WARNING

Read and observe the instructions within this chapter that have been compiled for user's safety and to ensure accordance with regulations. If the following General Safety Instructions for IT Equipment are not observed, it could lead to injuries to the operator and/or damage to the product. Kontron is exempt from accident liability, also during the warranty period if the instruction within this user guide are not observed.

The product has been built and tested according to the basic safety requirements for low voltage (LVD) applications and has left the manufacturer in a safety-related, flawless condition. To maintain this condition and to ensure safe operation, the operator must observe the correct operating conditions for the product and following general safety instructions:

- The product must be used as specified in the instructions for safety for the product and operator, as described within this user guide. The user guide contains guidelines for setting up, assembly, installation, maintenance, transport and storage.
- The on-site electrical installation must meet the requirements of the country's specific local regulations.
- If supplied with a power cable, only use the supplied power cable.
- Do not use an extension cable to connect the product.
- To guarantee sufficient airflow to cool the product, ensure that:
  - Ventilation openings are not covered or blocked.
  - Clean the filter pad regularly (as often as necessary, depending on the environment).
  - Do not place the product close to heat sources or damp places.
  - The product is well ventilated.
- Only connect devices or parts that fulfill the requirements of SELV circuits (Safety Extra Low Voltage) as stipulated by IEC 60950-1 to the available interfaces.
- Before opening the product, make sure that the product is disconnected from the mains.
- Switching off the product by the power button does not disconnect the product from the mains. Complete disconnection is only possible if the power cable is removed from the wall plug or from the product. Ensure that there is free and easy access to enable disconnection.
- The product may only be opened for the insertion or removal of expansion cards (depending on the configuration of the system). This may only be carried out by qualified operators.
- If extensions are being carried out, observe the following:
  - All effective legal regulations and technical data are adhered to
  - Power consumption of any add-on card does not exceed the specified limitations
  - Current consumption of the system does not exceed the value stated on the product label
- Only use original accessories and spare parts approved by Kontron.
- Note: safe operation is no longer possible when any of the following applies:
  - Product has visible damage
  - Product is no longer functioning
    - In these cases, the product must be switched off and disconnected from the mains. Additionally, ensured that the product can no longer be operated.

#### Additional safety instructions for DC power supply circuits

- To guarantee safe operation of products with DC power supply voltages larger than 60 volts DC or a power consumption larger than 120 VA, observe that:
  - Product is set up, installed and operated in a room or enclosure marked with "RESTRICTED ACCESS" if there are no safety messages such as safety signs and labels on the product.
  - Do not touch either directly or indirectly, cables or parts without insulation in electrical circuits with dangerous voltage or power.
  - Reliable protective earth connection is provided
  - Suitable, easily-accessible disconnecting device is used in the application (e.g. overcurrent protective device) if the product cannot be disconnected
  - A disconnect device, if provided in or as part of the equipment, must disconnect both poles simultaneously
  - Interconnecting power circuits of different devices cause no electrical hazards
- A sufficient dimensioning of the power cable wires must be selected according to the maximum electrical specifications on the product label as stipulated by EN60950-1 or VDE0100 or EN60204 or UL508 or EN62368-1 regulations.
- The devices do not generally fulfill the requirements for "centralized DC power systems" (UL 60950-1, Annex NAB; D2) and therefore may not be connected to such devices!

### 1.1. Operation of Laser Source Devices

Figure 1: Laser radiation warning label



The optional DVD drive contains light-emitting diodes (LEDs) (classified in accordance with IEC 60825-1:2007: 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 exposure to invisible laser radiation.

The laser system meets the Code of Federal Regulations (CFR), Title 21, 1040 -Performance standards for light-emitting products.



#### Laser!

Risk of exposure to invisible laser radiation when opening DVD drive

- Do not open DVD drive due to invisible laser radiation
- Check manufacture instructions eye protection maybe required

### 1.2. Electrostatic Discharge (ESD)



A sudden discharge of electrostatic electricity can destroy static-sensitive devices.

Proper packaging and grounding techniques are necessary precautions to prevent damage. Always observe the following precautions:

- 1. Transport ESD-sensitive products 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 sensitive products, components, or assembly.
- 4. Store electrostatic-sensitive products in protective packaging or on antistatic mats.

### 1.2.1. Grounding Methods

To avoid electrostatic damage, observe the following grounding guidelines:

- 1. Cover workstations with approved antistatic material. Always wear a wrist strap connected to the workplace. Always use 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. Switch 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 only field service tools that are conductive, such as cutters, screwdrivers, and vacuum cleaners.
- **8.** Always place drives and any boards PCB-assembly-side down on the foam.

### 1.3. Instructions for the Lithium Battery

When replacing the mainboard's lithium battery observe the instructions described in Chapter 10.3: Replacing the Lithium Battery.

#### **AWARNING**

Danger of explosion when replaced with wrong type of battery Replace only with the same or equivalent type recommended by the manufacturer. The lithium battery type must be UL recognized.



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. collecting points for dispose of batteries).

### 2/Introduction

This user guide focuses on describing the special features of the KISS 2U V3 made by Kontron. New users are recommended to study the instructions within this user guide before switching on the power.

The KISS 2U V3 is a scalable 2U rackmount system equipped with either a micro-ATX mainboard or backplane PICMG 1.3 full-size Single Board Computer (SBC), using Intel's® 7<sup>th</sup>/8<sup>th</sup> generation processors and supporting multiple expansion capabilities and external interfaces.

The KISS 2U V3 is designed for high performance, reliability and use in in harsh Industrial environments offering total flexibility with installation options in a 19" industrial rack or on a desktop.

#### General KISS 2U V3 CFL features are:

- micro-ATX mainboard
- Supporting Intel® Core ™ i3, i5 and i7 series and Intel® Xeon E-21XX series
- Intel® C246 Express chipset
- Up to 64 GB memory with 4x DDR4-2666 UDIMM/ECC support with Xeon E
- Expansion slots:
  - 4x PCIe slots (low profile) or
  - > 3 PCIe slots (full height, full length)
- Mass storage capabilities with M.2 socket ,HDD, SSD and DVD devices
- External Interfaces: 4x USB 2.0, 4x USB 3.1, 2x DP 1.2, DVI-D, Serial port, 2x 1 Gb Ethernet, audio, keyboard and mouse
- Active cooling

#### General KISS 2U V3 PCI763 features are:

- ▶ PICMG 1.3 Full-size CPU card
- Supporting Intel® Core™ i3, i5, i7 processor series
- Intel® Q170 chipset
- ▶ Up to 32 GB memory with DDR4-2133 UDIMM
- Expansion slots:
  - 1x PCIe x16 (16 lanes) (full height, half length)
  - > 1x PCIe x4 (4 lanes) (full height, half length)
  - 3x PCI 32-bit (full height, full length)
- Mass storage capabilities with HDD, SSD and DVD devices
- External Interfaces: 2x USB 3.0, 2x 1 Gb Ethernet and DVI-I
- Active cooling

### 3/ Scope of Delivery

Check that the delivery is complete, and contains the items listed in Table 1: Scope of delivery. If damaged or missing items are discovered, contact the dealer.

Table 1: Scope of delivery

Part	Qty.	Part Description	
KISS 2U V3	1	System configuration as ordered	
Access key	2	Opens front access panel lock	
Rubber feet	4	Self adhesive	
AC power cable	1	With Europe rating, other cable ratings are optional	
Safety instructions	1	Safety Instructions for IT equipment	

### 3.1. Accessories and Spare Parts

Table 2: Accessories and spares parts

	Part Number	Part Description
Accessories	1016-5807	Slide rails
	1051-7200	Mounting kit for slides rails
Spare parts	1050-8374	Filter pad
	1050-8442	Fan assembly

### 3.2. Shipment, Packaging and Unpacking

The KISS 2U V3 is delivered with all standard parts in a product specific cardboard packaging with suitable shock absorbers inside. Each item is packaged separately.

### 3.3. Type Label

Figure 2: Type label example



### 4/ Product Description

The KISS 2U V3 expands the Kontron KISS computer line. The KISS 2U V3 is a scalable 2U rackmount system equipped with either a micro-ATX mainboard or backplane PICMG 1.3 full-size SBC. The flexible customer-specific hardware system configuration and the robust construction with excellent mechanical stability offers the superior qualities of a computer designed for operation in harsh industrial environments. The KISS 2U V3's design enables installation in 19" industrial racks or as a desktop.

Figure 3: Rackmount variant (closed front access panel)

Figure 4: Desktop variant (closed front access panel)





Figure 5: Rackmount variant (opened front access panel) Figure 6: Desktop variant (opened front access panel)







The KISS 2U V3 is designed for horizontal operation. Vertical operation is possible.

The system can be equipped with up to three drive bays, where drive D1 and D2 are front accessible and drive bay D3 is internal.

The power button is located on the front side behind the front access panel. The LED indicators are located on the front side and consist of a power LED and hard disk activity LED.

The KISS 2U V3 is delivered with a 400 W Power Supply Unit (PSU) with an input voltage range of 100 VAC to 240 VAC.

Two system fans are installed at the front side of the system. The two system fans are attached to the system by means of a slide-in fan assembly. The fan assembly simplifies the installation and removal of the two system fans and enables replacement even during operation.

A washable filter pad attaches to the fan assembly to protect the system against dust and dirt. The filter pad can be replaced during operation.

Depending on the integrated CPU board (micro-ATX mainboard or PICMG 1.3 SBC) the system can be expanded with different expansion cards.

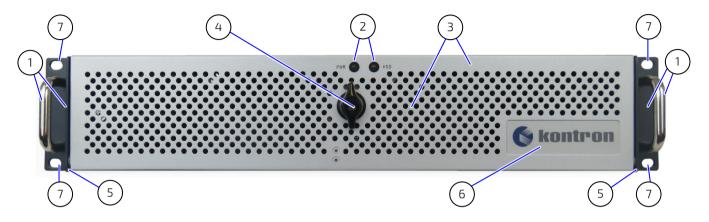
When powering on the KISS 2U V3 make sure that the ventilation holes (air intake and air exhaust), are not obstructed by objects.

//18 www.kontron.com

#### 4.1. Front Side

The front side consists of two handle brackets for installation in a 19" Industrial rack and a front access panel with two front access panel side-plates attached via the handle brackets.

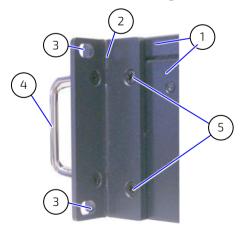
Figure 7: Front side with front access panel closed



- 1. Handle brackets
- 2. LED indicators
- 3. Front access panel with air intake ventilation holes
- 4. Key lock for the front access panel
- 5. Front access panel side-plates
- 6. Kontron logo
- 7. Mounting holes for 19" racks

For use as a desktop system, remove both handle brackets (right side and left side), see Chapter 8.2: Removing the Handle Brackets and attach the rubber feet (included in the delivery), see Chapter 8.1: Installing the Rubber Feet. Depending on the security requirements, the lockable front access panel and two front access panel side-plates can be removed or left in-place.

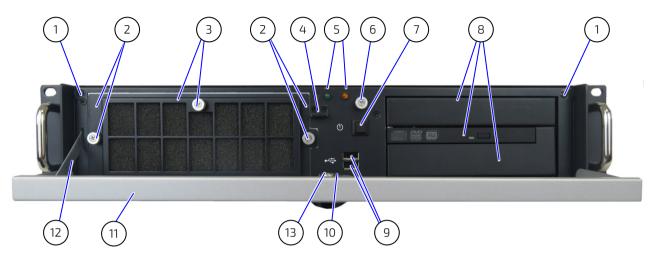
Figure 8: Handle bracket with fastening screws



- 1. Chassis and Cover
- 2. Handle bracket
- 3. Mounting holes for 19" racks
- 4. Handle
- 5. Screws to fasten handle bracket to chassis

The power button, LED indicators, two USB 2.0 ports, filter pad holder and the integrated drives are located on the front side of the system behind the front access panel.

Figure 9: Front side with front access panel open



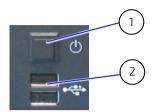
- 1. Bump stop for the front access panel
- 2. Fan assembly with two knurled screws
- 3. Filter pad holder with filter pad and knurled screw
- 4. Slot for the locking mechanism
- 5. Indicators (Power LED and HDD LED)
- **6.** Cover knurled fastening screw on the front side
- **7**. Power button
- 8. 3 x Drive bays
  - D1: 3,5" drive bay for 2.5" drives (on top)
  - **D2**: slim-line drive bay for slim DVD (shown with slim-line DVD)
  - D3: 3,5" internal drive bay for 3.5" or 2.5" drives

- 9. 2x USB (2.0) ports
- 10. Locking mechanism on front access panel
- 11. Front access panel with air intake ventilation holes
- 12. Holder arm for the front access panel
- 13. Central hinge for the front access panel

#### 4.1.1. USB Ports

The two USB 2.0 ports are located on the front side of the system (Figure 9, pos.9 and Figure 10, pos. 2), behind the front access panel.

Figure 10: Power button and USB 2.0 ports



- 1. Power button
- 2. USB 2.0 ports



If USB devices are connected to the USB ports on the front of the KISS 2U V3, the front access panel door cannot be closed and locked

#### 4.1.2. Controls and Indicators

#### 4.1.2.1. Power Button

The power button (Figure 9, pos. 7 and Figure 10, pos. 1) is located on the front side of the system, behind the front access panel. Press the power button to switch on or switch off the system.

Pressing the power button for longer than four seconds initiates a forced system shutdown before the power to the system is switched off.

#### **▲**WARNING

The power button does not disconnect from the mains power supply. When switched off using the power button, there is still a standby voltage of 5 VSB on the mainboard.

### **▲**WARNING

Power cable and power connectors must always remain easily accessible.

The KISS 2U V3 is only completely disconnected from the mains power supply when the power cable is disconnected, from the mains power socket or the KISS 2U V3's input power connector (Figure 13, Figure 14, Figure 15 pos. 1).

If the end environment restricts access to the power cable, disconnection must be guaranteed using a separate cut-off fixture.

#### NOTICE

Performing a forced shutdown can lead to loss of data or other undesirable effects!

### 4.1.2.2. Power LED and HDD Activity LED

The LED indicators (Figure 9, pos. 5 and Figure 11) are located on the front side of the system, behind the front access panel.

Figure 11: LED indicators



- 1 Power LED
- 2 HDD activity LED

Table 3: Power LED and HDD LED activity

LED	Description
Power LED (green)	LED illuminates (green) when the system is switched on by pressing the power button.  Prerequisite: The system must be connected to an appropriate AC/DC power source.
HDD LED (orange)	LED lights up during hard disk activity

### 4.1.3. Front Access Panel

The securing lock mechanism (Figure 7, pos. 4) located on the front access panel protects against unauthorized use. When locked the front access panel cannot be opened, and the drives, filter pad holder and power button are not accessible.

The KISS 2U V3 can be operated without the front access panel, see Chapter 8.3: Removing the Front Access Panel and Front Access Panel Side-Plates.



The front access panel key must be kept safely and not be accessible to unauthorized persons.

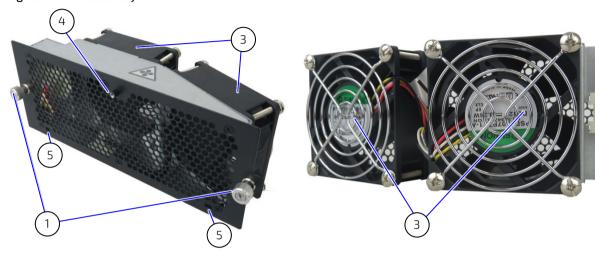


If USB devices are connected to the USB ports on the front side of the KISS 2U V3, the front access panel cannot be closed or locked.

### 4.1.4. Fan Assembly

The two system fans (Figure 12, pos. 3) are integrated in a user-friendly, replaceable slide-in fan assembly (hotswap) mounted in a fan compartment on the front side of the system. The two system fans are temperature controlled via temperature sensors, to provide an adequate airflow for optimal active cooling. For information on how to replace the fan assembly, see Chapter 10.2: Replacing the Fan Assembly.

Figure 12: Fan assembly



- 1. Two knurled screws
- 2. Connector for fan control
- 3. 2x fans (temperature controlled independently from each other)
- 4. Bolt with tapped hole screws
- 2x Positioning hole for filter pad holder positioning latch

### **▲**WARNING

Operation of the system is permitted only with a functional fan assembly!
Only replace a defective fan assemble with Kontron's original fan assembly, see
Chapter 10.2: Replacing the Fan Assembly.

#### **A**CAUTION

Fan assembly replaceable during operation

Replace fan only by qualified specialist or suitably instructed persons aware of the associated dangers. Keep hands and fingers away from rotating fan parts. Before removing the fan assembly, wait until the fans have totally stopped.

#### 4.1.5. Filter Pad and Filter Pad Holder



The filter pad can be changed during operation.

The filter pad and the filter pad holder (Figure 9, pos. 3) are located behind the front access panel (Figure 7, pos. 3). The filter pad protects the system from dust and dirt and will over time become soiled by pollution. If heavily soiled, the filter pad can cause excessive heating of the system. Kontron recommends cleaning the filter pad as often as necessary, see Chapter 10.1: Cleaning the Filter Pad.

The filter pad inserts into the filter pad holder. The filter pad holder fastens onto the fan assembly's front side by inserting the filter pad holder's positioning latches into the fan assembly's positioning holes (Figure 12, pos. 5) and then fastening the filter pad holder's knurled screw (Figure 9, pos. 3).

### 4.1.6. Drive Bays

The system can be equipped with up to three drive bays D1, D2 and D3 (Figure 9, pos. 8) Drive bays D1, D2 and D3 are supported by RAID.

Table 4: Drive bays

Drive Bay	Location	Description
D1	Front access	one 3.5" drive bay for 2.5" drives
D2		one slim drive bay for slim DVD drives
D3	Internal	one 3.5" drive bay for 3.5" or 2.5" drives



Additional internal drives are available (M.2 slot for memory modules). For more information regarding possible additional drives, see Chapter 5/System Extension.

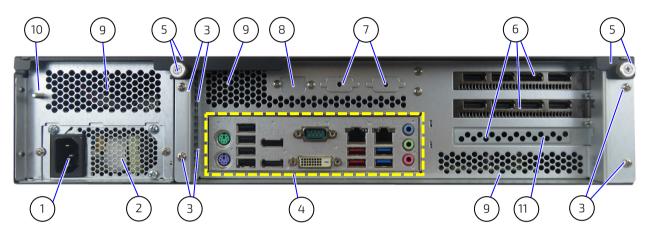
### 4.2. Rear Side

The rear panel includes the external interfaces of the integrated mainboard (micro-ATX or PICMG 1.3 SBC), any expansion cards interfaces/ports, power supply unit (PSU) socket, and air exhaust ventilation holes.



The positioning and number of interfaces varies depending on the system configuration.

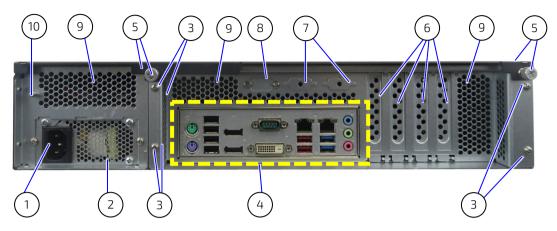
Figure 13: Rear side with micro-ATX mainboard with riser card



- 1. input power socket
- **2.** PSU ventilation holes (air exhaust)
- 3. Card cage (for the mainboard and expansion cards) with fixing screws
- 4. External interfaces of mainboard, see Chapter 4.2.1: Interfaces on the Rear Side
- 5. Rear side of the cover with knurled screws

- 6. Slot brackets for expansion cards
- 7. Cut-outs for optional interfaces routed to the rear (9-pin D-SUB type)
- 8. Additional serial port (RS232)
- 9. Ventilation holes (air exhaust)
- 10. Potential equalization stud

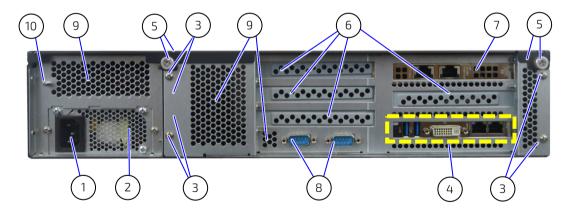
Figure 14: Rear side with micro-ATX mainboard with low profile cards



- 1. Input power socket
- 2. PSU ventilation holes (air exhaust)
- 3. Card cage (for mainboard board and expansion cards) with fixing screws
- External interfaces of the mainboard, see Chapter
   4.2.1: Interfaces on the Rear Side
- 5. Rear side of the cover with knurled screws

- 6. Slot brackets for expansion cards
- 7. Cut-outs for optional interfaces routed to the rear (9-pin D-SUB type)
- 8. Additional serial ports (RS232)
- **9.** Ventilation holes (air exhaust)
- 10. Potential equalization stud

Figure 15: Rear side with SBC



- 1. Input power socket
- **2.** PSU ventilation holes (air exhaust)
- **3.** Card cage (for SBC and riser expansion cards) with fixing screws
- 4. SBC card interface
- 5. Rear side of the cover with knurled screws

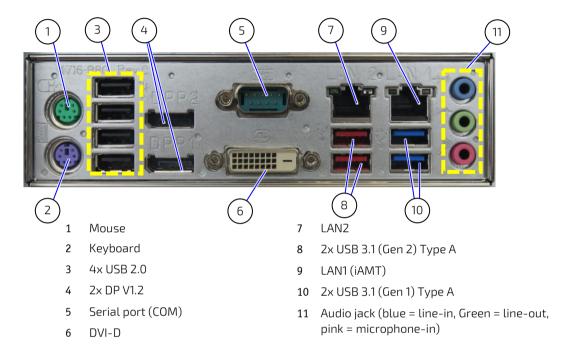
- **6.** Free slots for expansion cards
- 7. External Expansion card ( shown here with two LAN Ports)
- 8. Additional serial port (RS232)
- 9. Ventilation holes (air exhaust)
- 10. Potential equalization stud

### 4.2.1. Interfaces on the Rear Side

Depending on the installed mainboard (micro-ATX or PICMG 1.3), the following external interfaces are available for peripherals.

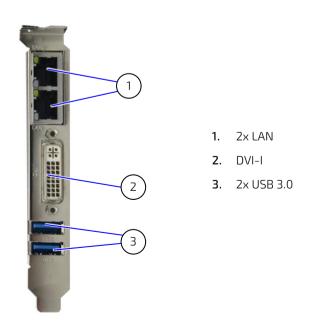
### 4.2.1.1. External Interfaces KISS 2U V3 CFL

Figure 16: External mainboard interface panel KISS 2U V3 CFL



### 4.2.1.2. External Interfaces KISS 2U V3 PCI763

Figure 17: External mainboard interface panel KISS 2U V3 PCI763



#### 4.2.2. Additional Serial Ports

Depending on the installed mainboard (micro-ATX or PICMG 1.3), the mainboard's on-board interfaces such as serial ports can be routed to the rear panel (see Figure 13, Figure 14, pos. 8. and pos. 7, and Figure 15, pos. 8).



For information and technical data, refer to the installed mainboard's user guide.

### 4.2.3. Power Supply Unit

The Power Supply Unit (PSU) is located on the rear side of the system. The PSU supports 400 W with a nominal voltage range 100 V to 240 V. The PSU supplies the required internal 12V, 5V and 3.3V voltages using standard certified cabling.

Figure 18: PSU 400W AC



#### **▲**WARNING

Power cable and power connectors must always remain easily accessible.

The KISS 2U V3 is only completely disconnected from the mains power supply when the power cable is disconnected, either from the mains power socket, or the system's input power connector (Figure 13, Figure 14, Figure 15, pos. 1).

If the end environment restricts access to the power cable, disconnection must be guaranteed using a separate cut-off fixture.

### **AWARNING**

The power button (Figure 9, pos. 7) does not disconnect from the mains power supply. When using the power button to switch off there is still a standby voltage of 5 VSB on the mainboard.

#### NOTICE

Do not disconnect the power from the system while the system is powered up!

Performing a forced shut down can lead to loss of data or other undesirable effects!

#### 4.2.4. Potential Equalization Stud

The potential equalization stud is located on the rear side of the system (Figure 13 and Figure 14, Figure 15, pos. 10). The potential equalization stud is not a ground connection. When connected the potential equalization stud ensures that all connected systems share a common potential.



The potential equalization stud is not a ground connection. The potential equalization stud ensures that all connected systems share a common potential.

# 4.3. Sides (Left and Right)

On the left and right sides of the KISS 2U V3 are six M4 tapped screw holes (Figure 19, Figure 20, pos. 1).used for installation in a 19" industrial rack with slide rails.

Figure 19: Left side

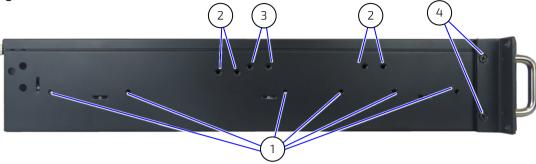
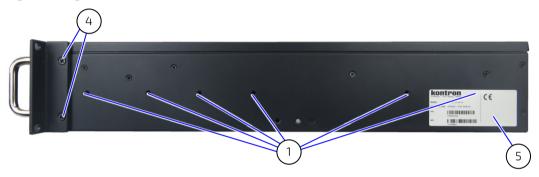


Figure 20: Right side



- 1. 6x M4 tapped holes (on both sides)
- **2.** 2x two M3 tapped holes used to mount the internal card holder
- 3. Tapped holes for the internal card holder screws
- 4. Handle bracket screws
- 5. Type label

#### 4.4. Cover

### **▲**WARNING

Energy hazards-240 VA present inside the chassis!

Before removing the KISS 2U V3's cover, ensure that the system is switched off and disconnected from the mains power supply.

Activities such as work inside the system, system expansion with expansion cards, or maintenance must be performed by qualified personnel aware of the associated dangers!

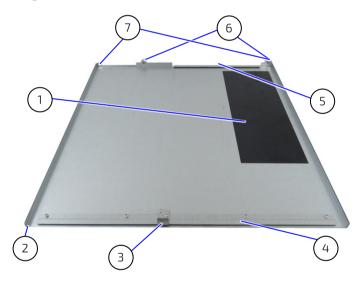
### **AWARNING**

The KISS 2U V3's chassis is only properly closed if the cover is attached and all knurled screws are securely fastened:

- Cover fastening screw (Figure 9, pos. 6) on the front side
- Knurled screws (Figure 13, Figure 14, Figure 15, pos. 5) on the rear side

The cover fixes to the main chassis using fixing brackets on the front side and rear side of the cover and fastens using two knurled screws on the rear side and one knurled screw on the front panel that attaches to the centering bracket on the front side of the cover. For more information on opening and closing the cover, see Chapter 7.1: Opening and Closing the Cover.

Figure 21: Cover underside



- 1. Insulation foil (Makrolon)
- 2. Cover front side
- 3. Angled centering fixing bracket with tapped hole (on the front side)
- 4. Fixing bracket (on the front side)
- 5. Fixing bracket (on the rear side)
- **6**. Two knurled screws
- 7. Centering slots

### 4.5. System Configuration

### 4.5.1. System Configuration with Mainboard and Low Profile Expansion Cards

Figure 22: Example of KISS 2U V3 configuration with mainboard and low profile expansion cards

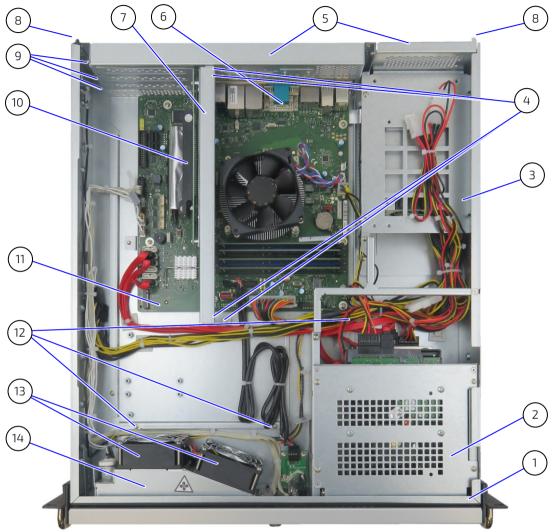


- 1. Cover retaining plate on the front side
- 2. D1, D2 and D3: drives bays (stacked one above the other into a drive cage)
- 3. Power Supply Unit (PSU)
- 4. Centering latches for the cover at the rear side
- 5. Cover retaining plates on the rear side
- **6.** Interface connectors (available externally)

- 7. Fastening screws for the slot brackets or expansion card slot brackets
- 8. Mainboard
- **9.** Fans (of the fan assembly)
- 10. Fan assembly (hot-swap)

### 4.5.2. System Configuration with Mainboard and Riser Card Expansion Cards

Figure 23: Example of KISS 2U V3 configuration with mainboard and riser expansion cards

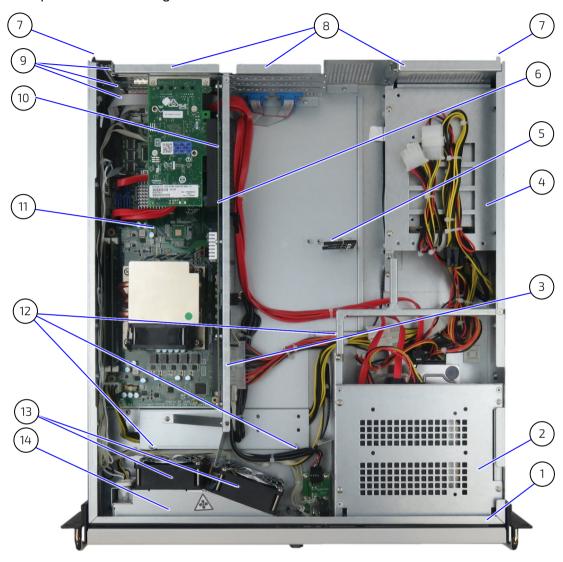


- 1. Cover retaining plate on the front side
- 2. D1, D2 and D3: drives bays (stacked one above the other into a drive cage)
- 3. Power Supply Unit (PSU)
- Fastening screws for riser card retaining bracket
- 5. Cover retaining plates on the rear side
- **6.** Interface connectors (available externally)
- 7. Retaining bracket for riser cards (not provided for system configuration with low profile cards)

- **8.** Centering latches for the cover at the rear side
- **9.** Fastening screws for slot brackets or expansion card slot brackets
- 10. Riser card with expansion slots
- 11. Mainboard
- **12.** Fastening screws for the card cage (expansion cards)
- **13**. Fans (of the fan assembly)
- **14.** Fan assembly (hot-swap)

### 4.5.3. System Configuration with SBC

Figure 24: Example of KISS 2U V3 configuration with SBC



- 1. Cover retaining plate on the front side
- 2. D1, D2 and D3: drives bays (stacked one above the other into a drive cage)
- 3. Retaining bracket for the butterfly-backplane
- 4. Power Supply Unit (PSU)
- 5. Card holder (to stabilize expansion cards (especially long))
- **6.** Butterfly-backplane for SBC (Expansion card can be inserted on both sides of the vertically installed backplane.)
- 7. Centering latches for the cover at the rear side

- 8. Cover retaining plates on the rear side
- **9.** Fastening screws for slot brackets or expansion card slot brackets
- 10. Expansion cards slots on the butterfly backplane
- **11.** SBC
- **12.** Fastening screws for the card cage (expansion cards)
- **13**. Fans (of the fan assembly)
- **14**. Fan assembly (hot-swap)

# 5/ System Extension



Due to the limited lifespan of expansion devices, Kontron recommends checking the condition of any installed expansion devices regularly and to pay attention to the manufacturer's lifespan specifications.



Opening the system to install or remove expansion cards must only be performed by qualified personnel aware of the associated dangers.

### 5.1. Mass Storage Options

An additional internal drive is configurable in systems where the mainboard includes an on-board M.2 slot for a M.2 2280 memory module. RAID support is not available for an on-board M.2 memory module.

Table 5: Mass storage devices

Mass Storage Device	Description
On-board M.2 slot	M2.2280 (key M) PCIe drive <sup>[1]</sup>

 $<sup>^{[1]}</sup>$  Option for the KISS 2U V3 CFL variants.



RAID support is not available for the on-board M.2 memory module.

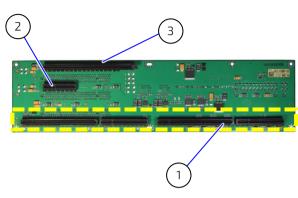
### 5.2. Expansion Cards

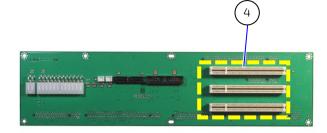
The following slots are available for expansion on the rear side of the chassis.

Table 6: Expansion slots

Installed Mainboard	Expansion Card Type	Description
micro-ATX (CFL)	Riser card	Up to 3x PCIe, (full height, full length)
	Low Profile card	Up to 4x PCIe (low profile)
PICMG 1.3 backplane (full-size) SBC		1x PCIe 2.0 x16 (16 lanes) (full height, half length) 1x PCIe 2.0 x4 (4 lanes) (full height, half length) 3x PCI 32-bit (full height, full length)

Figure 25: PCIe/PCI expansion slots type and location – PICMG 1.3 backplane SBC variant





- 1. 1x PICMG 1.3 (full size) SBC slot. This slot is not available for expansion cards.
- 2. 1x PCIe 2.0 x4 (full height, half length)
- 3. 1x PCIe 2.0 x16 (full height, half length)
- 4. 3x PCI 32-bit (full height, full length)



For information regarding the PCIe/PCI slot functionality and location on the mainboard, refer to the mainboard manufacturer's "Product Information". To determine which mainboard is implemented, see Chapter 11.2: Technical Specification, for more detailed mainboard information.



When adding expansion cards consider the maximum power consumption allowed by the KISS 2U V3's PSU.

### 6/ Thermal Considerations

### 6.1. Active Cooling

The KISS 2U V3 is forced air-cooled using two internal system fans that force air to flow from the front to the back of the chassis. The processor and expansion cards have integrated cooling solutions or are equipped with corresponding cooling devices.

If a filter pad is used, clean the filter pad regularly to ensure that sufficient airflow is provided, see Chapter 10.1: Cleaning the Filter Pad.

### 6.2. Minimum System Clearance

To guarantee that sufficient air flows from the front to the back of the chassis, ensure that the ventilation holes are not covered, blocked or obstructed by surrounding parts.

Before installing the KISS 2U V3 take into account, any thermal considerations mentioned in Chapter 8/: Installation such as airflow obstructions and the correct mount orientation.

**▲**WARNING

Ensure Sufficient Airflow.

Ensure that the 19" rack cabinet is well ventilated and does not prevent the KISS 2U V3 from taking in air at the front and exhausting air at the rear.

**▲**WARNING

Do not place the KISS 2U V3 close to heat sources or damp places.



There are no ventilation restrictions above and below the KISS 2U V3, enabling installation directly on top of or below another system.

### 6.3. Third Party Components

For KISS 2U V3 systems extended and configured with third party components such as PCIe expansion cards, M.2 module, DIMMs and drives (HDD, SSD, DVD), there is an internal temperature rise. Thus, the air temperature inside the system is higher than the ambient air temperature around the system.

## 7/ Assembly

No special tools are required to assemble the KISS 2U V3.

### 7.1. Opening and Closing the Cover

To access internal components open the cover.

#### **AWARNING**

Energy hazards-240 VA present inside the chassis!

Before removing the KISS 2U V3's cover, ensure that: the system is switched off and disconnected from the mains power supply.

Activities such as work inside the system, system extension with expansion cards, or maintenance must be performed by qualified personnel aware of the associated dangers!

To open the cover, proceed as follows:

- 1. Switch off and disconnect the system from the mains power supply.
- 2. Loosen the cover's knurled screws on the front side (Figure 26) and the two knurled screws on the rear side (Figure 27) that secure the cover.

Figure 26: Loosening knurled screw on the front side



Figure 27: Loosening knurled screws on the rear side



3. Pulling the cover out slightly as shown in Figure 28 releases the cover's centering and fixing brackets (Figure 21 pos. 3 & 4) from the retaining bracket on the front side of the chassis (Figure 22, Figure 23, Figure 24, pos. 1).

Figure 28: Pull and release the cover



4. Lift the cover up (on the rear edge) and remove the cover as shown in Figure 29.

Figure 29: Removing the cover



5. To close and secure the cover, proceed in the reverse order (steps 4 to 2).

### **AWARNING**

The KISS 2U V3's chassis is only properly closed if the cover is attached and all knurled screws are securely fastened:

- Cover fastening screw (Figure 9, pos. 6) on the front side
- Knurled screws (Figure 13, Figure 14, Figure 15, pos. 5) on the rear side

#### 7.2. Accessing Internal Components

This chapter contains important information on working safely with internal components. Follow these instructions when handling internal components such as expansion cards

#### **▲WARNING**

Energy hazards-240 VA present inside the chassis!

Before removing the KISS 2U V3's cover, ensure that: the system is switched off and disconnected from the mains power supply.

Activities such as work inside the system, system expansion with expansion cards, or maintenance must be performed by qualified personnel aware of the associated dangers!



#### **ESD Sensitive Device!**

Follow the safety instructions for components that are sensitive to electrostatic discharge (ESD). Failure to observe this warning notice can result in damage to the components.



Consult the documentation provided by the expansion card's manufacturer for instructions before installing/removing an expansion card.

Read and observe the corresponding safety instruction included in Chapter 1/: General Safety Instructions for IT Equipment.

#### 7.2.1. Installing and Removing Riser Card and SBC Expansion Cards

The mainboard with riser card and SBC board variants are mounted on a card cage. To access the slot bracket or expansion card screws, the card cage must be pulled-out slightly from the chassis.

To install or remove a riser card expansion cards or SBC expansion cards, proceeding as follows:

- 1. Switch off and disconnect the system from the mains power supply.
- 2. Open the cover as described in Chapter 7.1: Opening and Closing the Cover.
- 3. For systems with SBC, unscrew the three internal card cage screws (Figure 24, pos. 12) and the four external card cage screws on the rear side (Figure 30). Retain the screws for later use.
- 4. For systems with mainboard and riser card, unscrew the three internal card cage screws (Figure 23, pos. 12) and the four external card cage screws on the rear side (Figure 30). Retain the screws for later use.
- 5. Lift the card cage upwards, and slide out slightly, to gain access to the slot bracket or expansion card screws.

Figure 30: Pulled-out card cage for SBC and mainboard with riser card



**6.** Install/remove the expansion card (/s) in/from the respective expansion slot (/s) and fasten the expansion card(/s) or the slot bracket(/s) to the card cage (Figure 23, Figure 24, pos. 9).

- 7. Slide the card cage back into the original position and proceed in the reserve order to Steps 3 or Step 4 to secure the card cage
- **8.** Close the system and secure the cover with the knurled screws as described in the Chapter 7.1: Opening and Closing the Cover (step 5).

### 7.2.2. Installing and Removing Low Profile Expansion Cards

To install or remove low profile expansion cards, proceed as follows:

- 1. Switch off and disconnect the system from the mains power supply.
- 2. Open the system as described in the Chapter 7.1: Opening and Closing the Cover.
- 3. Install a low profile expansion card by:
  - a. Removing the slot bracket's fasten screw and retaining the slot bracket with screw for later use.
  - b. Inserting the low profile expansion card (/s) into the respective expansion card slot (/s).
  - c. Secure the low profile expansion card (/s) with fastening screw (Figure 22: pos. 7).
- 4. Remove a low profile expansion card by:
  - a. Unscrewing the expansion card's screw (Figure 22, pos. 7).
  - b. Removing the low profile expansion card (/s) from the respective mainboard expansion card slot. (Store the expansion card with screw for possible future use).
  - c. Inserting a slot bracket into the empty expansion card slot on the rear side of the chassis.
  - d. Securing the slot bracket by fastening the slot bracket screw (Figure 22, pos. 7)
- **5.** Close the system and secure the cover with the knurled screws as described in the Chapter 7.1: Opening and Closing the Cover (step 5).

### 8/Installation

Before installing or removing the KISS 2U V3 in a 19" industrial rack or desktop environment, read the general installation instructions in this chapter.

**▲**WARNING

Read and observe the information in Chapter 1/: General Safety Instruction for IT Equipment.

**▲**WARNING

The system must be mounted and installed only by qualified personnel aware of the associated dangers.

**AWARNING** 

**Ensure Sufficient Airflow** 

Ensure the KISS 2U V3 is well ventilated and that nothing obstructs the KISS 2U V3 from taking in air at the front and exhausting air at the rear.

There are no restrictions above and below the KISS 2U V3, enabling KISS 2U V3 systems to be installed directly on top of another system.

**▲**WARNING

Do not place the KISS 2U V3 close to heat sources or damp places.

**ACAUTION** 

The KISS 2U V3 may be operated horizontally only.



If access is restricted, install expansion cards before installing the KISS 2U V3.

### 8.1. Installing the Rubber Feet

For use on a desktop, to avoid scratching the surface, attach the supplied four rubber feet:

- 1. Switch off the system and disconnect it from the mains power supply. Disconnect all peripherals.
- 2. Ensure that all components are securely installed and that the system cover is closed and secured.
- 3. Turn the chassis upside down (Orientation: bottom side facing upwards).
- 4. Remove the protective film from the self-adhesive rubber feet.
- 5. Attach the self-adhesive rubber feet to the bottom side of the chassis.
- 6. Turn the chassis the right way around (Orientation: cover facing upwards).

NOTICE

Do not disconnect the power from the system while the system is powered up! Performing a forced shutdown can lead to loss of data or other undesirable effects!

#### 8.2. Removing the Handle Brackets

The two handles brackets are removable. To remove the handles brackets, proceed as follows:

- 1. Loosen and remove the two screw (Figure 8, pos. 5) that fasten the handle brackets and the front access panel side-plates to the chassis (left side and right side)
- 2. Reattach the front access panel side-plate using the original two screws (left side, right side).
- 3. Store the two handle brackets for possible further use.
- 4. To reinstall the handle brackets proceed in the reverse order (step 1 to 2).

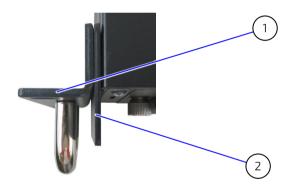


The KISS 2U V3 is delivered with the handle brackets already assembled.

#### 8.3. Removing the Front Access Panel and Front Access Panel Side-Plates

The front access panel and the two front access panel side-plates are removable.

Figure 31: Front access panel side-plate and handle bracket



- Bracket handle
- 2. Front access panel side-plate

To remove the front access panel and front access panel side-plates, proceed as follows:

- 1. Loosen the two screws (Figure 8, pos. 5) that hold the handle bracket and front access panel side-plates to the chassis (left side or right side).
- 2. When loosened enough release the front access panels hinges from the front access panel side-plate's hole. Initially release one side of the front access panel and the other side will loosen and can be removed.
- 3. Move the front access panel slightly to the left to release the front access panel from the central hinge and then carefully guide the front access panel's holder arm out of the holding slot.
- 4. Store the front access panel for future use.
- 5. Remove the front panel side-plates (left side and right side) by removing the screws previously loosened in step 1
- 6. If required re- attach the handle brackets (left side and right side), using the screws removed in step 5.

#### 8.4. Installing as a Desktop

Before installing the KISS 2U V3 in a desktop environment, install the rubber feet as described in Chapter 8.1: Installing the Rubber Feet, to avoid scratching the installation surface.

Additionally, observe the general instructions at the start of this chapter and any additional safety warnings below.

#### **AWARNING**

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 located on right side of the chassis.

#### **▲WARNING**

Ensure sufficient air circulation.

Make sure the product is well ventilated and that nothing obstructs the KISS 2U V3 from taking in air at the front and exhausting air at the rear.

Above and below the KISS 2U V3 there are no restrictions, enabling KISS 2U V3 systems to be installed directly on top of another system.

To install in a desktop environment, proceed as follows:

- 1. Add the rubber feet as described in Chapter 8.1: Installing the Rubber Feet.
- 2. If required, remove the handle brackets as described in Chapter 8.2:Removing the Handle Brackets
- 3. If required remove the front access panel and two front access panel side-plates as described in Chapter 8.3: Removing the Front Access Panel and Front Access Panel Side-Plates.

### 8.5. Installing in a 19" Industrial Rack

Before installing the KISS 2U V3 in a 19" industrial rack, observe the instructions described in this chapter and any additional safety warnings. To assemble for a 19" industrial rack using slide rails, see Chapter 8.6: Installing Slide Rails (Option).

#### **AWARNING**

To support the KISS 2U V3's weight, two separate fixation methods must be used:

- Front handle brackets (left side and right side)
- ▶ Slide rails or L brackets or a 19" rack rear side fixation

#### **▲WARNING**

**Ensure Sufficient Airflow** 

Ensure that the 19" Industrial rack cabinet is well ventilated and does not prevent the KISS 2U V3 from taking in air at the front and exhausting air at the rear.



There are no ventilation restrictions above and below the KISS 2U V3, enabling installation directly on top of or below another system.

#### **AWARNING**

The 19" industrial rack cabinet must be stable. To improve stability:

- Install systems from the bottom up
- Place heavy systems lower down
- Bolt the cabinet to the floor or anchor the cabinet to the wall

#### **A**CAUTION

Verify that the KISS 2U V3 is securely mounted

When using slide rails, the KISS 2U V3 must be securely mounted on the slide rails and both front handle brackets must be fastened (left side, right side) to the 19" Industrial rack cabinet.

#### **ACAUTION**

Installing the KISS 2U V3 alone can result in product damage or personal injury.



Due to possible access restrictions, before installing systems in a 19" industrial rack cabinet:

- Install all expansion card
- Connect peripherals to the corresponding system ports

To install in a 19" industrial rack, proceed as follows:

- 1. Install the slide rails to the KISS 2U V3 as described in Chapter 8.6: Installing Slide Rails (Option).
- 2. Install the corresponding slide kits to the 19" industrial rack cabinet, see Figure 35: Assembling the slide rails in an industrial rack cabinet.
- 3. Push the KISS 2U V3 with slide rail assembly as far as possible into the corresponding installed rack slide rail.
- 4. Use the handle bracket mounting holes (Figure 8, pos. 3) to firmly attach the KISS 2U V3's handle brackets to the sides of the 19" industrial rack.
- 5. Verify that the KISS 2U V3 is securely mounted.

### 8.6. Installing Slide Rails (Option)

Kontron offers compatible 19" Slide Rails and Rack Slide Rails Kit for the KISS 2U V3. For more information, see Table 2: Accessories and spares parts.

#### **AWARNING**

To support the KISS 2U V3's weight, two separate fixation methods must be used:

- Front handle brackets (left side, right side)
- Slide rails or L brackets or a 19" Industrial rack rear side fixation

#### **ACAUTION**

Use only the specified screw to attach telescope slide rails to the KISS 2U V3.

#### **A**CAUTION

Verify that the KISS 2U V3 is securely mounted

When using slide rails, the KISS 2U V3 must be securely mounted on the slide rails and both front handle brackets must be fastened to the Industrial rack cabinet. (left side, right side).

To install slide rails, proceed as follows:

- 1. Extend the slide rail to the pulled-out position (Figure 33) to expose the inner part of the slide rail with screw holes (Figure 32, pos. 2)
- 2. Using the supplied screws firmly attach the side rail to the left side and right side (Figure 32, pos 2).
- 3. Push the slide rail into the pushed-in position (Figure 34).

4. Install the corresponding rack slide rail kits to the 19" industrial rack cabinet, see Figure 35: Assembling the slide rails in an industrial rack cabinet.

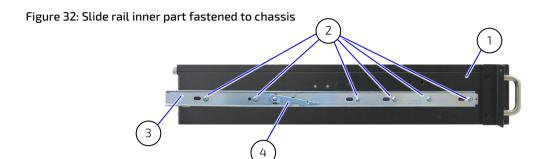
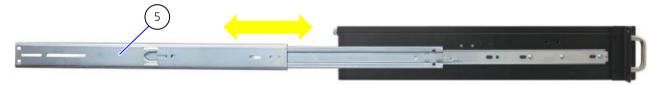


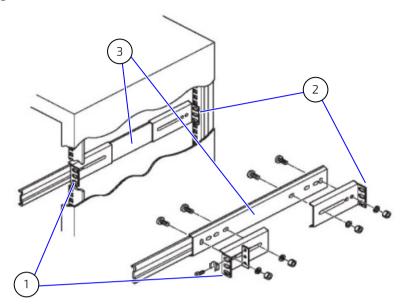
Figure 33: Slide rail in pulled-out position





- 1. Side view of the KISS 2U V3
- 2. 6x M4 rounded head screws(per each side)
- 3. Inner part of the slide rail
- 4. Locking/unlocking lever
- 5. Slide rail in pulled-out position
- 6. Slide rail in pushed-in position

Figure 35: Assembling the slide rails in an industrial rack cabinet



- 1. Short front bracket
- 2. Long rear bracket
- 3. Telescopic slide rail attached to Industrial rack cabinet



Short brackets are usually used at the front of the chassis and long brackets at the rear.

### 9/Starting Up

Before staring up observe the instructions in Chapter 1: General Safety Instruction for IT Equipment.

#### **▲**WARNING

Recommended intended used is closed and locked

Only when the cover is properly installed, secured with the knurled screws on the rear and front, and the front access panel is locked, is it ensured that the operator doesn't have access to the internal parts, loaded with hazardous energy.

#### 9.1. Connecting the Power Connection

### **▲**WARNING

Power cable and power connectors must always remain easily accessible.

The KISS 2U V3 is only completely disconnected from the mains power supply when the power cable is disconnected, either from the mains power socket, or the system's input power socket (Figure 13, Figure 14, Figure 15, pos. 1).

If the end environment restrict access to power cable, disconnection must be guaranteed using a separate cut-off fixture.

#### **ACAUTION**

Ensure that the mains power supply socket (power outlet) is properly grounded and the power cable is in perfect condition with no visible damage.

#### NOTICE

The rated mains voltage range must agree with the voltage specified on the type label.

### NOTICE

Do not disconnect the power from the system while the system is powered up! Performing a forced shut down can lead to loss of data or other undesirable effects!

Figure 36: Input power socket





The input power socket is located on the rear side. To connect the power and start up, proceed as follows:

- 1. Connect the ends of the supplied AC power cable to the corresponding sockets:
  - a. Input power socket (Figure 36)
  - b. Mains power supply socket, using the electrical plug for the region.
- 2. Unlock the front access panel (Figure 7, pos. 3) and press the power button (Figure 9, pos. 7).
- 3. Close and lock the front access panel (Figure 7, pos. 4).
- 4. The power LED illuminates green (Figure 11, pos. 1).

### 9.2. Operating System and Hardware Component Drivers

The KISS 2U V3 is fully operational when switched on for the first time with pre-installed Operating System (OS) Windows 10 IoT  $\times$ 64 or Linux Ubuntu 64-bit and with all required drivers. Drivers are available from Kontron's EMD customer section.

If ordered without pre-installed OS, before starting the KISS 2U V3 install the operating system and the appropriate drivers for the system configuration. Consider the manufacturer's specifications for the OS and the integrated hardware components.



Download the relevant drivers for the installed hardware from our web site at www.kontron.com by selecting the product or visit Kontron's EMD customer section.

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

#### 10/ Maintenance and Prevention

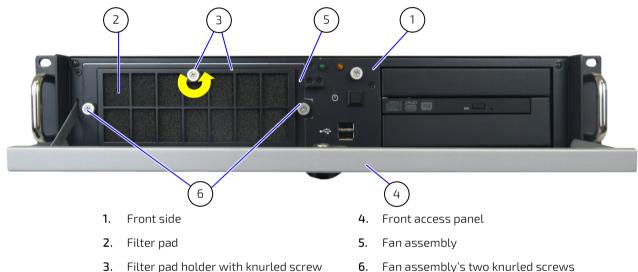
Kontron systems only require minimal maintenance and care to maintain correct operation.

- Wipe the system with a soft dry cloth if required
- Remove persistent dirt using a soft, slightly damp cloth (only use a mild detergent)
- Clean the air filter pad regularly (as often as necessary, depending on the environment)

#### 10.1. Cleaning the Filter Pad

The filter pad inserts into the filter pad holder at the front side of the fan assembly. The filter pad is soiled by pollution within the operating environment. If heavily soiled the filter pad can cause excessive heating of the system Kontron recommends cleaning the filter pad as often as necessary. It is possible to change the filter pad during the operation of the system.

Figure 37: Front side with filter pad holder



To replace the filter pad, proceed as follows:

- 1. Open the front access panel, (Figure 37 pos. 4).
- 2. Loosen the knurled screw (Figure 37, pos. 3) that secures the filter pad holder to the fan assembly in the direction shown.
- 3. Release the filter pad holder's positioning latches from the positioning holes on the fan assemble (Figure 38, pos. 3) by moving upwards and lifting out the filter pad holder.
- 4. Remove the dirty filter pad (Figure 41), from the filter pad holder.
- **5.** Clean the filter pad as follows:
  - a. Rinse the filter pad in water (up to approx.  $40^{\circ}$ C/ $104^{\circ}$ F; with a mild commercial detergent).
  - b. It is also possible to beat the filter pad, suction clean the filter pad, or blast the filter pad with warm compressed air.
  - c. If the filter pad is soiled with grease and dust, rinse the filter pad in warm water with a degreaser.
  - d. Do not clean the filter pad with a piercing jet of water.
- **6.** Do not wring out the filter pad, allow the filter pad to air dry.
- 7. After cleaning and drying the filter pad, place the filter pad in the filter pad holder (Figure 40).

- 8. Reattach the filter pad holder to the front side of the fan assembly by inserting the filter pads holder's positioning latches (Figure 39, pos. 7) into the fan assembly's positioning holes (Figure 38, pos. 3).
- 9. Fasten the filter pad holder by tightening the knurled screw (Figure 39, pos. 6) to the bolt with tapped hole (Figure 38, pos. 1) on the fan assembly.



Defective components may only be replaced by Kontron original spare parts. For a list of spare parts, see Table 2: Accessories and spares parts.

Figure 38: Front side without filter pad

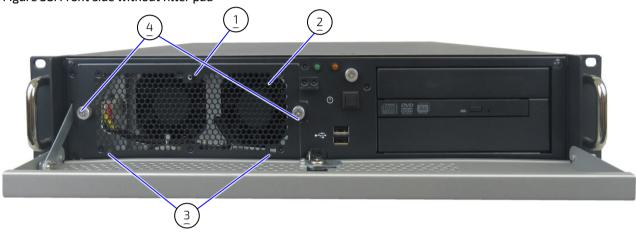


Figure 39: Filter pad holder (without filter pad)

Figure 40: Filter pad holder (with filter pad)

Figure 41: Filter pad

Legend for Figure 38, Figure 39, Figure 40 and Figure 41

- 1. Fan assembly bolt with tapped hole
- Ventilation holes (air intake) on the front side of the fan assembly
- Positioning holes for the filter pad holder
- 4. Knurled screw to fix fan assemble in the chassis
- 5. Filter pad holder
- Knurled screw of the filter pad holder
- 7. Positioning latch of the filter pad holder

#### 10.2. Replacing the Fan Assembly

Before replacing the fan assembly, read the following instructions:

#### **▲**WARNING

The operation of the KISS 2U V3 is permitted only with a functional fan assembly! Only replace a defective fan assemble with Kontron's original fan assembly.

#### **A**CAUTION

Fan assembly replaceable during operation.

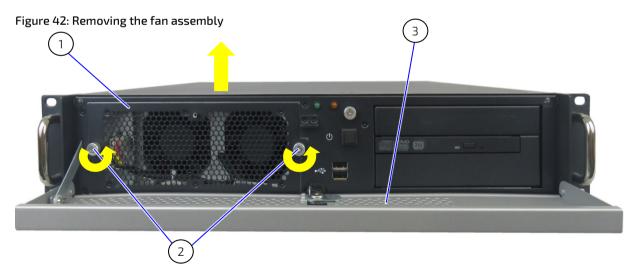
Replace fan only by qualified specialist or a suitably instructed persons aware of the associated dangers. Before removing the fan assembly, wait until the fans have totally stopped. Keep hands and fingers away from rotating fan parts.



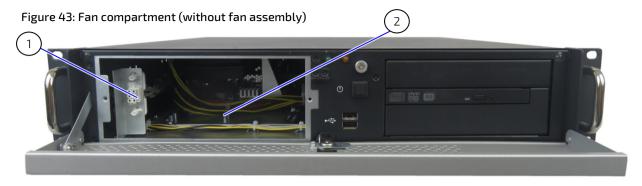
The filter pad holder can be fasten to the front side of the fan assembly either before or after the fan assembly is installed in the chassis.

To replace the fan assembly, proceed as follows:

- 1. Remove the filter pad holder and filter pad as described in the Chapter 10.1: Cleaning the Filter Pad (steps 1 to 3) and retain the filter pad holder with filter pad for later use.
- 2. Loosen the two knurled screws on the fan assembly in the direction shown (Figure 42, pos. 2)
- **3.** Pull out the fan assembly to disconnect the fan assembly from the internal fan power and control socket (Figure 43, pos. 1).
- 4. Lift the fan assembly upwards as shown (Figure 42) to remove from the fan compartment (Figure 43, pos. 2).



- 1. Fan assembly
- 2. Two knurled screws
- 3. Front access panel



- 1. Fan power and control socket
- 2. Fan compartment
- 5. To replace with a new functional fan assembly, align the fan assembly with the fan compartment.
- **6.** Push the fan assembly carefully into the fan compartment until the fan assembly's control connector (Figure 12, pos. 2) is firmly inserted into the internal fan power supply and control socket (Figure 43, pos. 1).
- 7. Secure the fan assembly by fasten the two knurled screws on the fan assembly (Figure 42, pos. 2)
- 8. Insert the filter pad into the retained filter pad holder (put aside in step 1). Then attach the filter pad holder to the front side of the fan assembly as described in the Chapter 10.1: Cleaning the Filter Pad (steps 7 to 9).

### 10.3. Replacing the Lithium Battery

#### **AWARNING**

Danger of explosion when replaced with wrong battery type Replace only with the same or equivalent type recommended by the manufacturer. The lithium battery type must be UL recognized.



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. collecting points for dispose of batteries).

To replace the lithium battery on the mainboard (micro-ATX or PICMG 1.3), proceed as follows:

- 1. Switch off and disconnect the system from the mains power supply.
- 2. Open the cover, as described in the Chapter 7.1: Opening and Closing the Cover (steps 1 to 4).
- 3. If the system includes expansion cards, first remove the expansion cards and all corresponding connecting cables, to gain access to the lithium battery, see Chapter 7.2: Accessing Internal Components.
- 4. Remove the lithium battery from the holder by pulling the ejector spring outwards.
- 5. Place a new lithium battery in the battery holder.
- **6.** Pay attention to the polarity of the battery.
- 7. Replace the lithium battery only with the same type of battery or with a type of battery recommended by Kontron.
- 8. Reinstall the removed expansion cards and reattach the connecting cables.
- 9. Close the cover, as described in the Chapter 7.1: Opening and Closing the Cover (step 5).

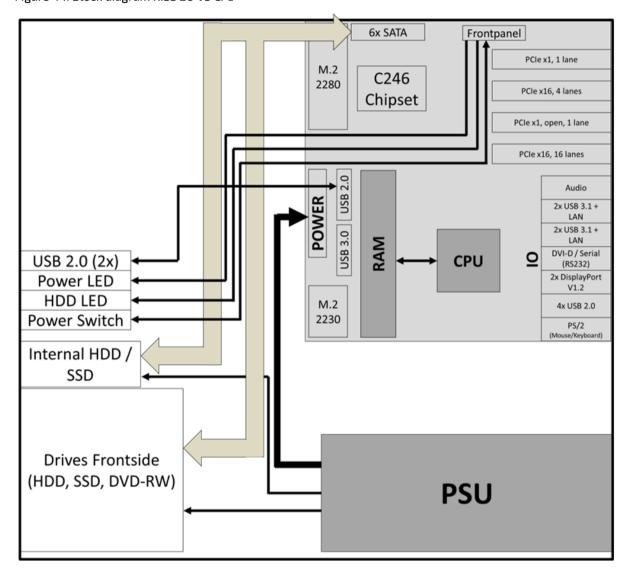
### 11/Technical Data

The main technical specifications of the KISS 2U V3 are listed within this chapter.

### 11.1. Block Diagrams

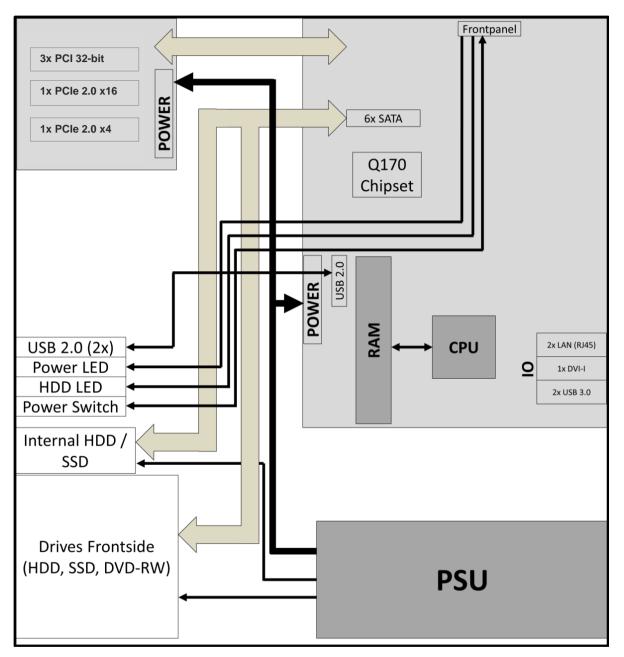
## 11.1.1. Block Diagram KISS 2U V3 CFL

Figure 44: Block diagram KISS 2U V3 CFL



### 11.1.2. Block KISS 2U V3 PCI763

Figure 45: Block diagram KISS 2U V3 PCI763



# 11.2. Technical Specification

	KISS 2U V3 CFL		KISS 2U V3 PCI76	3
Board				
Mainboard	D3641-S1 (micro-ATX)		SHB140 (PICMG 1.3 Full-size CPU card)	
Processor	Intel® Core™ i7, i5, i	3 series	Intel® Core™ i7, i	5, i3 series
Type	Intel® Xeon® E-21XX	series		
Chipset	Intel® C246 Express		Intel® Q170	
Memory	4x DDR4 2666 UDIM (ECC support only wi Max. 64 GB (with: 2x 4 x 16 GB)		2x DDR4 2133 no Max. 32 GB (With	n-ECC n: 2x 4 GB, 2x 8GB, 2x 16 GB)
Front I/O				
USB	2x USB 2.0		2x USB 2.0	
Drive Bays				
Front	1x 3.5"drive bay	for 2.5" drives	1x 3.5"drive bay	for 2.5" drives
Accessible	1x slim drive bay	for slim DVD drives	1x slim drive bay	for slim DVD drives
Internal	1x 3.5"drive bay	for 3.5" or 2.5" drives	1x 3.5"drive bay	for 3.5" or 2.5" drives
Mass Storage Op	otions			
Mass Storage Device	Mass Storage 1x M.2 2280 (PCIe 4 lanes )			
Rear I/O	"			
USB	4x USB 2.0 2x USB 3.1 Gen1 2x USB 3.1 Gen2		2x USB 3.0	
LAN	2x 1 GbE (1x i219LM 8	t 1x i210AT)	2x 1 GbE (1x i219L	.M 6 1x i211AT)
	<ul><li>10/100/1000 Mb/s</li><li>ATM 12.0 /vPro support</li><li>Teaming support</li></ul>		1x i219LM:  10/100/1000 N  iATM 9.0	1x i211AT:  1b/s 10/100/1000 Mb/s
Display	•	1x DVI-D (1920 x 1200 @60 Hz) 2x DP v1.2 (4096x2304 @60Hz)		1
PS/2	Keyboard, Mouse			
Audio	1x Line in, 1x Line out 1x Microphone		(Available via an	internal header)
Serial Port	1x RS232		1x RS232/422/48	85
	(Two optional additional serial ports cutouts on the		the rear side of the	chassis)
Expansion Cards				
Type	Low profile cards Riser cards		1x PCIe 2.0 x16 (full height, half length)	
Slots	4x PCIe slots (Low profile)  3x PCIe slots (full height, full length)		1x PCIe 2.0 x4 (full height, half length) 3x PCI 32-bit (full height, full length)	
Fan				
System Fan (external)	2x fans included in re	emovable fan assembly	2x fans included	in removable fan assembly

<u>www.kontron.com</u> // 55

	KISS 2U V3 CFL	KISS 2U V3 PCI763	
Internal Fans	1xPSU (integrated in PSU)	1xPSU (integrated in PSU)	
	1xCPU (heatsink with fan)	1xCPU (heatsink with fan)	
Software			
Operating	MS Windows 10 IoT x64	MS Windows 10 IoT x64	
System (OS)	Linux Ubuntu 1804 LTSB Desktop 64-bit		
BIOS	AMI UEFI BIOS 5.x	AMI UEFI BIOS 5.x	
Power	Power		
PSU Type	Industrial AC/DC 1HE/FLEX PSU		
Output Power	400 W		
Input Voltage Range	100 VAC to 240 VAC <sup>[1]</sup>		
Input Current	6 A to 3 A		

<sup>[1]</sup> The electrical specification is available on the type label. For more information, see Chapter 3.3: Type Label.

### 11.3. Mechanical Specification

Dimension	KISS 2U V3 (with front panel & handles)	KISS 2U V3 (without front panel & handles)	
Height	88 mm (3.46")	88 mm (3.46")	
Width	482 mm (19")	430 mm ( 16.93")	
Depth	490 mm (19.29")	472 mm (18.58")	
Weight	8 kg (approx.)	8 kg (approx.)	
Chassis	Chassis: RAL 7021	Chassis: RAL 7021	
	Front panel: RAL 9022 – standard	Front panel: RAL 9022 – standard	
	Front panel: RAL 5017 - option		



For a more detailed mechanical specification, visit Kontron's KISS 2U V3 Product Webpage and within the "Downloads" section, select "Mechanical Drawings".

## 11.4. Environmental Specification

Temperature	Description
Operating Temperature	0 °C to +50 °C
	+50°F to +122 °F
Storage / Transit	-20°C to +70°C
Temperature	-4°F to +158°F
Relative Humidity (Operating/Storage/Transit)	10-93 % @ 40° C, non condensing

Environment	Description
Max. Operation Altitude	5,000 m (16,400 ft)
Max. Storage / Transport Altitude	10,000 m (32,810 ft)

Environment	Description
Operating Shock	15 g, 11 ms, duration
Storage / Transit Shock	30 g., 11 ms, duration
Operating Vibration	10 – 150 Hz, 1.0 g, 3 axis
Storage / Transit Vibration	10 – 150 Hz, 2.0 g, 3 axis
Acoustic Noise	<= 35dBa
MTBF	50,000h @ 30°C (min. configuration)

## 11.5. Directives and Standards

The KISS 2U V3 complies with the following:

CE Directive		
Electrical Safety	General Product Safety Directive	2001/95/EC
	Low Voltage Directive	2014/35/EU
Electromagnetic Compatibility (EMC) Directive	2014/30/EU	
Restriction of Hazardoud Substance Directive (RoHS II)	2011/65/EU	
Waste Electrical and Electronic Equipment Directive (WEEE)	2012/19/EU	

Electrical Safet	Electrical Safety	
EUROPE	<b>EN 62368-1</b> : Audio/video, information and communication technology equipment – Safety requirements	
CB Scheme	CB report created for IEC 62368-1	

EMC		
Europe	EN 55024 : Information technology equipment - Immunity characteristics	
	EN 55032 : Electromagnetic compatibility of multimedia equipment - Emission requirements	
	EN6100-6-2: Immunity for industrial environments	
	EN6100-6-3: Emission standard for residential, commercial and light-industrial environments	

# 12/ Standard Interfaces- Pin Assignments

## 12.1. Keyboard Connector Pin Assignment

Pin	Signal Name	Keyboard Connector
1	Data	
2	NC	
3	GND	<b></b>
4	+5V <sup>[1]</sup>	$\left( \begin{array}{ccc} O^4 & \begin{array}{ccc} & 3 \\ 2 & 1 \end{array} \right)$
5	Clock	(0 0)
6	Keyboard_On <sup>[2]</sup>	

<sup>[1]</sup> fuse protected

## 12.2. PS/2 Mouse Connector Pin Assignment

Pin	Signal Name	PS/2 Connector
1	Data	
2	NC	
3	GND	<b>0</b> 6□20
4	+5V <sup>[1]</sup>	$\left( \begin{array}{ccc} O^4 & \begin{array}{ccc} \\ \end{array} & \begin{array}{ccc} 3 & \\ \end{array} & \begin{array}{ccc} \end{array} \right)$
5	Clock	
6	Keyboard_On <sup>[2]</sup>	

<sup>[1]</sup> fuse protected

## 12.3. USB 2.0 Pin Assignment

Pin	Signal Name	USB 2.0 Type A Connector
1	+5V <sup>[1]</sup>	
2	Data-	
3	Data+	2 3 4
4	GND	

<sup>[1]</sup> fuse protected

<sup>&</sup>lt;sup>[2]</sup>low asserted pulse

<sup>[2]</sup>low asserted pulse

## 12.4. Display Port Pin Assignment

Pin	Signal Name	Pin	Signal Name	DP (V1.2) Connector
1	TX0+	11	GND	
2	GND	12	TX3-	
3	TX0-	13	DVI dongle detect/ GND	
4	TX1+	14	GND / CEC for HDMI	
5	GND	15	AUX+	[ [annananana] ]
6	TX1-	16	GND	
7	TX2+	17	AUX-	
8	GND	18	Hotplug detect	
9	TX2-	19	GND	
10	TX3+	20	+3.3 V <sup>[1]</sup>	

<sup>[1] (</sup>fuse protected)

## 12.5. COM 1 Pin Assignment

Pin	RS232	RS422	RS 485 Half Duplex	RS 485 Full Duplex	COM Connector
1	DCD	Tx-	Data-	Tx-	
2	RxD	Tx+	Data+	Tx+	
3	TxD	Rx+		Rx+	<b>→</b> 05
4	DTR	Rx-		Rx-	
5	GND	GND	GND	GND	
6	DSR				
7	RTS				
8	CTS				
9	RI				

## 12.6. DVI\_D Connector Pin Assignment

The DVI-D Dual-link connector supports single-link only.

Pin	Signal Name	Pin	Signal Name	Pin	Signal Name	DVI-D Connector	
1	Data2-	9	Data1-	17	Data0-		
2	Data2+	10	Data1+	18	Data0+	1	8
3	GND	11	GND	19	GND		==
4	NC	12	NC	20	NC		
5	NC	13	NC	21	NC	17	24 C5
6	DDC Clock	14	+5 V <sup>[1]</sup>	22	GND		
7	DDC Data	15	GND	23	Clk +		
8	NC	16	Hot Plug Detect	24	Clk -	C5	GND

<sup>[1]</sup> fuse protected

## 12.7. DVI-I Connector Pin Assignment

Pin	Signal Name	Pin	Signal Name	Pin	Signal Name	DVI-	D Connector	
1	Data2-	9	Data1-	17	Data0-			
							1	8 C1 C2
2	Data2+	10	Data1+	18	Data0+		1 2 3 4 5 6	78 NR
							9 10 11 12 13 1 17 18 19 20 21 2	
3	GND	11	GND	19	GND	L		
							17	24 C3C5 C4
4	NC	12	NC	20	NC	C1	Analog red	d
5	NC	13	NC	21	NC	C2	Analog gre	een
6	DDC Clock	14	+5 V	22	GND	С3	Anlog blue	
7	DDC Data	15	GND	23	Clk +	C4	Analog horzontal sync.	
8	NC	16	Hot Plug Detect	24	Clk -	C5	GND	

## 12.8. LAN Connector Pin Assignment

Pin	Signal Name (10/100/1000)	Pin	Signal Name (10/100)	RJ45 (female) Connector
1	MX1+	1	TX+	Link/Activity Speed
2	MX1-	2	TX-	\ \ /
3	MX2+	3	RX+	
4	MX3+	4	NC	
5	MX3-	5	NC	∞nn nn nnnn
6	MX2-	6	RX-	
7	MX4+	7	NC	
8	MX4-	8	NC	

## 12.9. USB 3.0 and USB 3.1 (Gen1/Gen2) Type A Pin Assignment

Pin	Signal Name	Pin	Signal Name	USB 3.0/3.1 Type A Connector <sup>[2]</sup>
1	+5V <sup>[1]</sup>	5	USB3_RX-	
2	USB2_D-	6	USB3_RX+	9 8 7 6 5
3	USB2_D+	7	GND	
4	GND	8	USB3_TX-	
		9	USB3_TX+	

<sup>[1]</sup> fuse protected

 $<sup>^{[2]}</sup>$ USB 3.0/3.1 connectors provide separate signal lines for USB 3.0/3.1 and USB 2.0.

## 12.10. Audio Jack Pin Assignment

Jack	Signal	Audio Barrel Jack
А	Line-in	
В	Line-out	
С	Microphone-in	

### 13/ Technical Support

In order to request technical support, send an email with the information below to support@kontron.com

- Product name
- Product model number
- Serial number of the unit
- Brief problem description
- Complete company address

Customers with service portal access may maintain their tickets directly in the service portal.



The serial number can be found on the type label, placed on the bottom side of the chassis.

### 13.1. Returning Defective Merchandise

All equipment returned to Kontron must have a Return of Material Authorization (RMA) number assigned exclusively by Kontron. Kontron cannot be held responsible for any loss or damage caused to the equipment received without an RMA number. The buyer accepts responsibility for all freight charges for the return of goods to Kontron's designated facility. Kontron will pay the return freight charges back to the buyer's location in the event that the equipment is repaired or replaced within the stipulated warranty period.

Follow these steps before returning any product to Kontron.

1. Visit the RMA Information website:



Kontron's RMA Information website can be found at: http://www.kontron.com/support-and-services/support/rma-information

- 2. Download the RMA Request sheet for Kontron Europe GmbH, Augsburg and fill out the form. Take care to include a short detailed description of the observed problem or failure and to include the product identification (product name, material number and serial-number). If more than one product is sent in a delivery. Fill out the above information in the RMA Request form for each product.
- 3. Send the completed RMA-sheet to the given fax or email address at Kontron Europe GmbH. Kontron Europe GmbH will provide an RMA-Number within one business day.
- 4. The goods for repair shall be packed properly for shipping, considering shock and ESD protection.



Goods returned to Kontron Europe GmbH in non-proper packaging are considered as customer caused faults and cannot be accepted as warranty repairs.

5. Add the RMA-sheet to the relevant delivery address and include the RMA-No with the shipping paperwork.

Sent the product to the following delivery address:

Kontron Europe GmbH RMA Support Lise-Meitner-Str. 3-5 86156 Augsburg Germany

Phone: +49 (0) 821 4086-0 Fax: +49 (0) 821 4086 111 Email: service@kontron.com

**6.** After Kontron Europe GmbH receives the product, a confirmation of the order is sent via email to the address named on the RMA sheet.

## 14/ Storage and Transportation

### 14.1. Storage

If the product is not in use for an extended period time, disconnect the power plug from the mains power source. If it is necessary to store the product then re-pack the product as originally delivered to avoid damage. The storage facility must meet the products environmental storage requirements as stated within this user guide. Kontron recommends keeping the original packaging material for future storage or warranty shipments.

### 14.2. Transportation

To ship the product use the original packaging, designed to withstand impact and adequately protect the product. When packing or unpacking products always take shock and ESD protection into consideration and use an EOS/ESD safe working area.

## 15/ Warranty

Kontron defines product warranty in accordance with regional warranty definitions. Claims are at Kontron's discretion and limited to the defect being of a material nature. To find out more about the warranty conditions and the defined warranty period for your region, following the steps below:

- 1. Visit Kontron's Term and Conditions webpage.
  - http://www.kontron.com/terms-and-conditions
- 2. Click on your region's General Terms and Conditions of Sale.

### 15.1. Limitation/Exemption from Warranty Obligation

In general, Kontron shall not be required to honor the warranty, even during the warranty period, and shall be exempted from the statutory accident liability obligations in the event of damage caused to the product due to failure to observe the following:

- General safety instructions for IT equipment within this user guide
- Warning labels on the product and warning symbols within this user guide
- Information and hints within this user guide

Additionally, alterations or modifications to the product that are not explicitly approved by Kontron, described in this user guide, or received from Kontron Support as a special handling instruction will void your warranty.

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

# Appendix A: List of Acronyms

### Table 7: List of Acronyms

ATX	Advanced Technology eXtended
API	Application Program Interface
BIOS	Basic Input Output System
CLI	Command-Line Interface
СОМ	Communication port
CPU	Central Processing Unit
DC	Direct Current
DDR	Double Data Rate
DIMM	Dual Inline Memory Module
DP	Display port
DVD	Digital Video Device
DVI	Digital Video Interface
ECC	Error Checking and Correction
EMC	Electromagnetic Compatibility
ESD	ElectroStatic Dischange
GbE	Giga bit Ethernet
GPSD	General Product Safety Directive
GPU	Graphics Processing Unit
HD/HDD	Hard Disk /Drive
НРМ	PICMG Hardware Platform Management specification family
iAMT	Intel® Active Management Technology
IOL	IPMI-Over-LAN
IOT	Internet of Things
IPMI	Intelligent Platform Management Interface
KCS	Keyboard Controller Style
KBD	Keyboard
KVM	Keyboard Video Mouse
LAN	Local Area Network
LED	Light-Emitting Diode
LVD	Low Voltage Directive
MEI	Management Engine Interface
MICRO-	Micro Advanced Technology eXtended
MICKU-	I viici o Auvanceu Technology exterided

ATX	
NCSI	Network Communications Services Interface
OS	Operating System
PCB	Plastic Circuit Board
PCI	Peripheral Component Interconnect
PCle	PCI-Express
PECI	Platform Environment Control Interface
PICMG®	PCI Industrial Computer Manufacturers Group
PSU	Power Supply Unit
RAM	Random Access memory
RDIMM	Registered DIMM
REACH	Registration, Evaluation, Authorization and restriction of Chemicals
RMA	Return of Material Authorization
RTC	Real Time Clock
SBC	Single Board Computer
SEL	System Event Log
ShMC	Shelf Management Controller
SMBus	System Management Bus
SMWI	System Monitor Web Interface
SOL	Serial Over LAN
SRAM	Synchronous Dynamic Random Access Memory
SSD	Solid State Drive
SSH	Secure Shell
TPM	Trusted Platform Module
UDIMM	Unregisterd DIMM
UEFI	Unified Extensible Firmware Interface
USB	Universal Serial Bus
WEEE	Waste Electrical and Electronic Equipment



#### **About Kontron**

Kontron is a global leader in embedded computing technology (ECT). As a part of technology group S&T, Kontron offers a combined portfolio of secure hardware, middleware and services for Internet of Things (IoT) and Industry 4.0 applications. With its standard products and tailor-made solutions based on highly reliable state-of-the-art embedded technologies, Kontron provides secure and innovative applications for a variety of industries. As a result, customers benefit from accelerated time-to-market, reduced total cost of ownership, product longevity and the best fully integrated applications overall. For more information, visit: www.kontron.com



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