» User's Guide «

KISS Oil & Gas 2U - Rugged Server KTQ77/Flex

User's Guide (Version 1.00)
930-0060-00

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1.2. Document Revision History

Revision	Date	By	Comment
0	July 31, 2014	MH	Preliminary version
1	August 8, 2014	MH	Updated pictures and name

2. Introduction

Kontron America would like to point out that the information and instructions contained in this manual may be subject to technical modifications, in particular as a result of continuous product development by Kontron America. The enclosed documents do not contain any assurances on the part of Kontron America as regards to the technical processes described or certain product features portrayed in the manual. Kontron America assumes no liability for printing errors or other inaccuracies in this manual, unless it can be demonstrated that Kontron America is aware of such errors or that Kontron America is unaware of these as a result of gross negligence, and that Kontron America has failed to properly correct the errors or inaccuracies for these reasons. Kontron America would like to expressly inform the user that this manual only contains a general description of technical processes and instructions, the implementation of which may not be advisable in their current form in every individual case. In the event of any doubt, you must confer with Kontron America.

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2.1. Designed for the Oil and Gas Industry

Today's opportunities for new drill sites are requiring the oil and gas industry to expand data collection and analysis efforts. Frontier acreage and challenging geographic installations are needed to meet the ever increasing demand from emerging and traditional markets. Unconventional sources of gas and oil further complicate the need to capture data for field use, control and analysis. Often the field and control centers are subjected to harsh environments.

Kontron has been designing and manufacturing embedded computer systems, subsystems and computer boards for the extreme needs of the military and industrial use for decades. By utilizing this expertise Kontron has developed the KISS Oil & Gas 2U, a rugged rackmount server designed to meet the needs for a tough, reliable server for the Oil & Gas industry. Since Kontron builds the motherboards and the systems, Kontron has optimized the server for reliability and high MTBF and can offer worldwide technical support. The system meets shock and vibration considerations, as well as the temperature and dust extremes common to Oil & Gas installations.

All Kontron systems are revision controlled for ease of in field maintenance and since Kontron develops the motherboard and the system, each system is optimized and capabilities are enabled to meet Oil & Gas needs. Longtime availability of the motherboard and system reduces in-field operational costs and personnel training as drill sites are expanded. Each system has a front accesible dust filter as well as cable tie-downs, hold-down brackets and shock mountings to ease transport.

Applications for the KISS Oil & Gas 2U include:

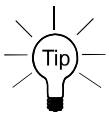
- Supervisory control and data acquisition (SCADA)
- Control room management
- Oil & Gas exploration
- Natural gas processing
- Wellhead monitoring control
- Unconventional sources exploration and control
- Evaluation during implementation of new technology

Kontron also offers custom product development services to the Oil & Gas industry for customers needing a high volume of systems.

3. Important Instructions

The following instructions must be observed when working with the KISS Oil & Gas 2U.

3.1. Meaning of Symbols in this Manual

Symbol	Meaning
	This symbol indicates the danger of injury to the user or the risk of damage to the product if the corresponding warning notices are not observed.
	This symbol indicates that the product or parts thereof may be damaged if the corresponding warning notices are not observed.
	This symbol indicates general information about the product and the user manual.
	This symbol precedes helpful hints and tips for daily use.
	This symbol indicates that the system is equipped with hazardous moving parts.There is danger of injury to the user or the risk of damage to the product if the corresponding warning notices are not observed.Before maintenance and repair activities, the device must be disconnected from the power supply.

3.2. Warranty Information

Because of their limited life span, parts that are naturally susceptible to a certain degree of wear and tear (expendable parts) are excluded from the warranty beyond that provided by law. This applies to batteries, for example.

3.3. Exemption from Liability for Accidents

Should the user disregard the instructions (specifically the safety instructions) in this manual and possibly on the device, Kontron America will be exempt from legal liability for accidents.

3.4. Limitation of Liability / Warranty Obligations

In the event of damage to the device, which is caused by a failure to observe the instructions (specifically the safety instructions) in this manual and possibly on the device, Kontron America will not be required to honor the warranty, including during the warranty period, and will be exempt from legal liability for accidents.

4. Safety Instructions

Please read this chapter carefully and take note of the instructions for your own safety and proper use of the device.

This chapter also contains information on certification and radio shielding for the system.

Take note of the warnings and instructions on the device and in the manual. KISS Oil & Gas 2U has been built and tested by Kontron.

Computers in accordance with EN 60950/VDE 0805 and left the production plant in a perfectly safe condition.

In order to maintain this condition and to guarantee safe operation, the user must observe the instructions and warning notices contained in this manual.

- The device must be used in accordance with the instruction manual.
- The electrical wiring in the related rooms must meet the requirements of the applicable regulations.
- Ensure that no cables, in particular power cables, are lying across the floors in accessible areas, where people could fall over or get caught in them.
- Avoid using power cables in sockets with a large number of other devices. Do not use extension cables.
- Only use the power cable supplied with the device.
- Do not position the device close to a heat source or in a damp place. Ensure that the device has adequate ventilation.
- Only devices or components, which meet the requirements of a SELV circuit (safety extra-low voltage) in accordance with EN 60950, should be connected to the system ports.
- Switching off the device using the power on/off toggle switch does not disconnect the computer from the power source. The device is only completely isolated from the mains by disconnecting the mains power cable from the mains or from the device. For this reason, ensure that there is easy access to the mains power cable, including its mains plug.
- All plugs on connection cables must be screwed or bolted to the chassis.
- The device should only be operated in a horizontal position.
- The device should only be maintained or repaired by specialists authorized by Kontron America, who are aware of the associated dangers.
- The device should only be opened for the installation and removal of

PCI-/PCIe x16 and 32-bit PCI expansion cards, in accordance with the description in this manual. These operations should only be undertaken by qualified specialists.

- When expanding the device, care must be taken to comply with legal regulations as well as technical specifications.
- The device must be switched off and disconnected from the power source, before installing an expansion card.

» Only original accessories approved by Kontron America should be used.

» It must be assumed that safe operation is no longer possible, when the device displays visible signs of damage, or when the device no longer works. In such cases, the device must be turned off and secured against unintentional operation.

4.1. Operation of Laser Source Devices

Fig. 1: Laser Radiation Warning Label

The optional DVD drive contain light-emitting diodes (classified in accordance with IEC 825-1:1993: LASER CLASS 1) and must therefore not be opened.

When the drive housing is open, invisible laser radiation is emitted. Do not expose yourself to the laser beam.

The laser system meets the requirements of Federal Regulations 21 CFR, 1040 in the USA and the Canadian Radiation Emitting Devices Act pursuant to REDR C 1370.

4.2. Electrostatic Discharges (ESD)

A sudden electrostatic discharge can destroy sensitive components. Proper packaging and grounding rules must therefore be observed. Always take the following precautions.

1. Transport boards and cards in electrostatically secure containers or bags.
2. Keep electrostatically sensitive components in their containers, until they arrive at an electrostatically protected workplace.
3. Only touch electrostatically sensitive components when you are properly earthed.
4. Store electrostatically sensitive components in protective packaging or on anti- static mats.

4.3. Grounding Methods

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

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

4.4. Instructions for the Lithium Battery

The installed motherboard is equipped with a Lithium battery. For the replacing of this battery please observe the instructions described in the "Maintenance and Prevention" chapter.

Warning

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

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

4.5. FCC Statement

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

Radio Frequency Emissions in accordance with requirements of US IEC/EN-55022 and FCC Part 15A.
(English): This Class A digital apparatus complies with the Canadian ICES-003.
(French): Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

4.6. Electromagnetic Compatibility

This device has been developed for industrial, commercial and office use, as well as for small businesses. It is governed by Electromagnetic Immunity tests in accordance with requirements of IEC/EN 55024.

Digital devices sold in Canada are required to comply with the Interference Causing Equipment Standard for Digital Apparatus, ICES-003, Issue 5, dated August 2012.These test methods and limits are specified in the Canadian Standards Association's Standard CAN/CSA-CISPR 22-10 and are "essentially equivalent" with the CISPR 22 (EN55022) rules for unintentional radiators.

Should the user make changes and/or add to the device (e.g. installation of expansion cards), the requirements for the CE Declaration of Conformity (protective requirement) may no longer be met.

5. Scope of Delivery

The KISS Oil & Gas 2U comes with key standard features:

» 2U Rugged Rackmount Server platform (with the system configuration ordered)

» AC power cord

» 500 Watt High efficiency power supply (installed)

» Slim DVD +/- RW drive (installed)

» Slide rails

5.1. Optional Components

» Rubber feet (self-adhesive); Kontron part number 529-0043-00

» Replacement chassis filter: Kontron part number 409-0174-00

5.2. System Configuration Options

» Up to 3x Hot-swap SATA drives

» Up to 32GB DDR3 RAM

» Up to 3.4 GHz Intel® 3rd Generation Core™ i Series CPU

5.3. Model and Serial Number Identification

The type label for the KISS Oil & Gas 2U is located on the right side of the device under the top panel as well as on the bottom of the chassis.

Fig. 2: Model & Serial Number Label

5.4. Rackmount to Desktop Conversion

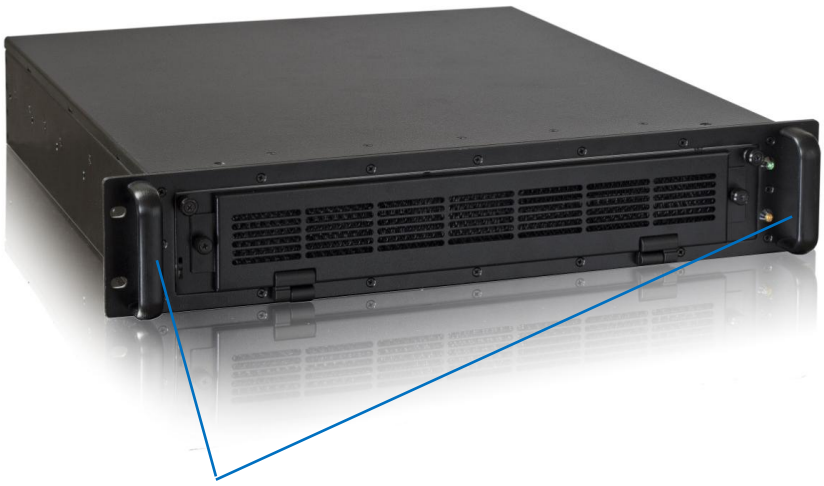


Fig. 3. KISS Oil & Gas 2U Rugged Server ready for rackmounting

The KISS Oil & Gas 2U is designed to be rackmounted using the 19" brackets with handles.

You can very easily convert your system to a desktop version. To do this, unscrew the handles from on each side of the chassis by unscrewing the two screws on the back of each handle. To attach the rubber feet (optional), proceed as described in the "Attaching the Rubber Feet" chapter.

6. Product Description

The KISS Oil & Gas 2U is a scalable 2U (19") platform which is fitted with a Kontron designed motherboard. The robust design with excellent mechanical stability provides the 2U Rugged Rackmount Server platform with the necessary characteristics for a computer, suitable for use in the harsh field and control environments of the oil and gas industry.

Fig. 4: KISS Oil & Gas 2U

The KISS Oil & Gas 2U includes a 500W high efficiency AC power supply.

LED indicators are located on far right of the front of the device: These indicators are a "Power LED" and a "Hard disk activity LED".

The front panel allows for easy access to the washable dust filter and front panel controls. The washable filter mat, which protects the system from dirt, is located at the front of the device. It is possible to change the filter mat during operation of the KISS Oil & Gas 2U. The power switch and 2x USB 2.0 ports are located behind the dust filter.

An optional drive cover further protects optional Hot-swap SATA drive carriers and a Slim DVD +/- RW located in the front of the KISS Oil & Gas 2U.

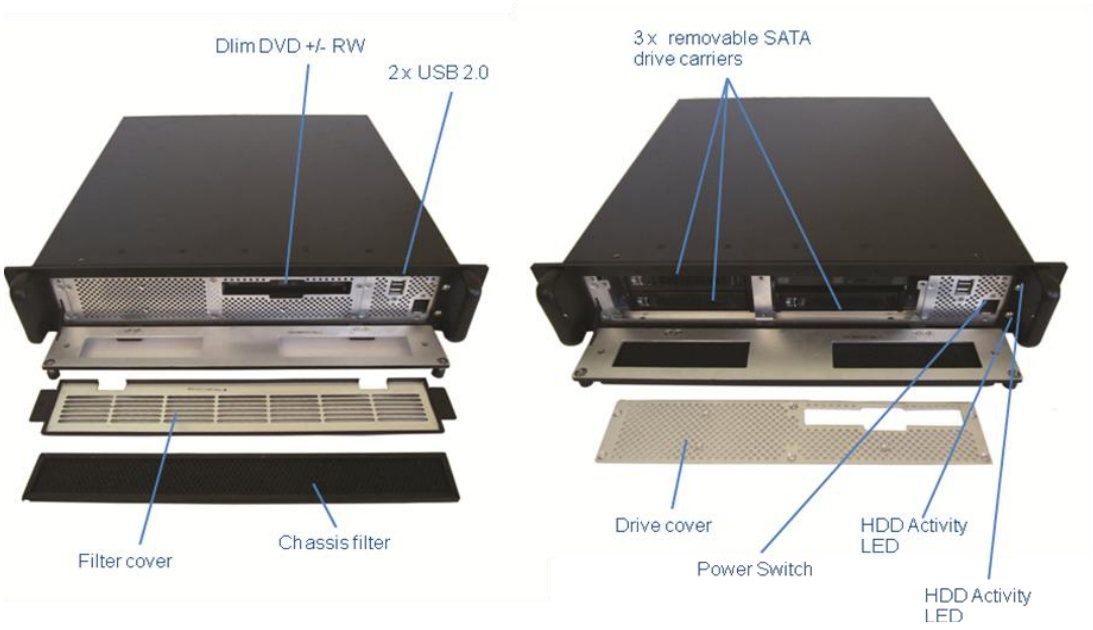


Fig. 5: KISS Oil & Gas 2U showing filter cover, chassis cover and drive cover

☞ When switching on the KISS Oil & Gas 2U, ensure that the ventilation slots are not obstructed.

6.1. Inside the KISS Oil & Gas 2U Chassis

6.1.1. From the Front Panel

Fig. 6: View from the front of the KISS Oil & Gas 2U with the top panel and filter/ filter cover removed

If the top cover is removed from the 2U Rugged Server you can see the label on the right hand side which lists the Kontron serial number and model number for the system configuration.

The drive bays near the front of the system are shock mounted, covered and secured to meet the rigorous demands of the Oil & Gas industry.

6.1.2. From the Rear Panel

Fig. 7: View from the back of KISS Oil & Gas 2U with top cover removed

The system fans are located near the rear of the 2U Rugged Server. The power supply is also located in the rear right side of the unit with a fan for cooling. The motherboard with it's box-like fan mounted on top is also located in the rear left side of the unit as are most of the I/O ports.

6.2. Front of the System

The controls (Power On/Off), USB port and the 3x removable SATA 6Gb/s drive carriers and Slim DVD +/-RW drive are accessible from the front panel of the KISS Oil & Gas 2U, behind the filter cover, the chassis filter and the drive cover.

6.2.1. LED Indicators

The LED indicators are located in the right side of the front of the device with the front cover on.

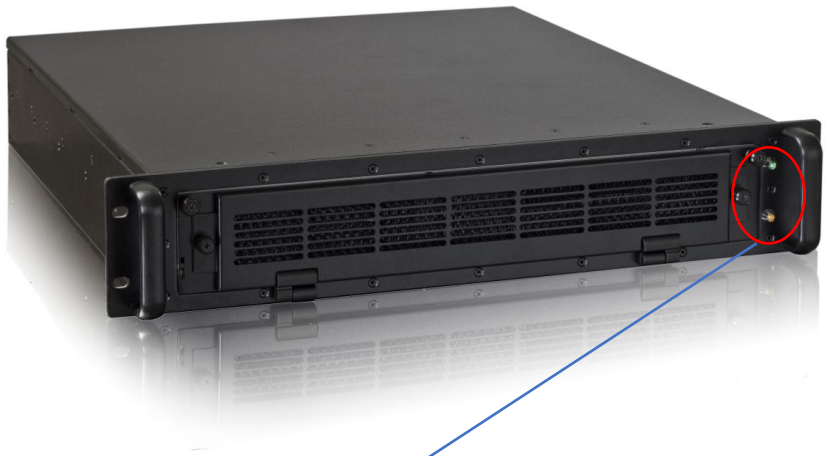


Fig. 8: LED Indicators

LED indicators	
Power LED (green)	This LED is green when the system is switched on using the Power On/Off button. ***Requirement:*** The system must be connected to the appropriate power source, using the main power cable
Hard drive activity LED (orange)	This LED is orange when the hard disk is being accessed.

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

6.2.2. Front Access Filter Cover

The front access filter cover is fitted with 2 easy access knobs.

When USB devices are connected to the USB ports on the front of the device, the front access panel cannot be closed and locked.

Chassis Filter

The chassis filter fits behind the filter cover. The filter cover has a ventilation grill. This chassis filter protects your system from dust and dirt (refer to "Cleaning the Chassis Filter" chapter).

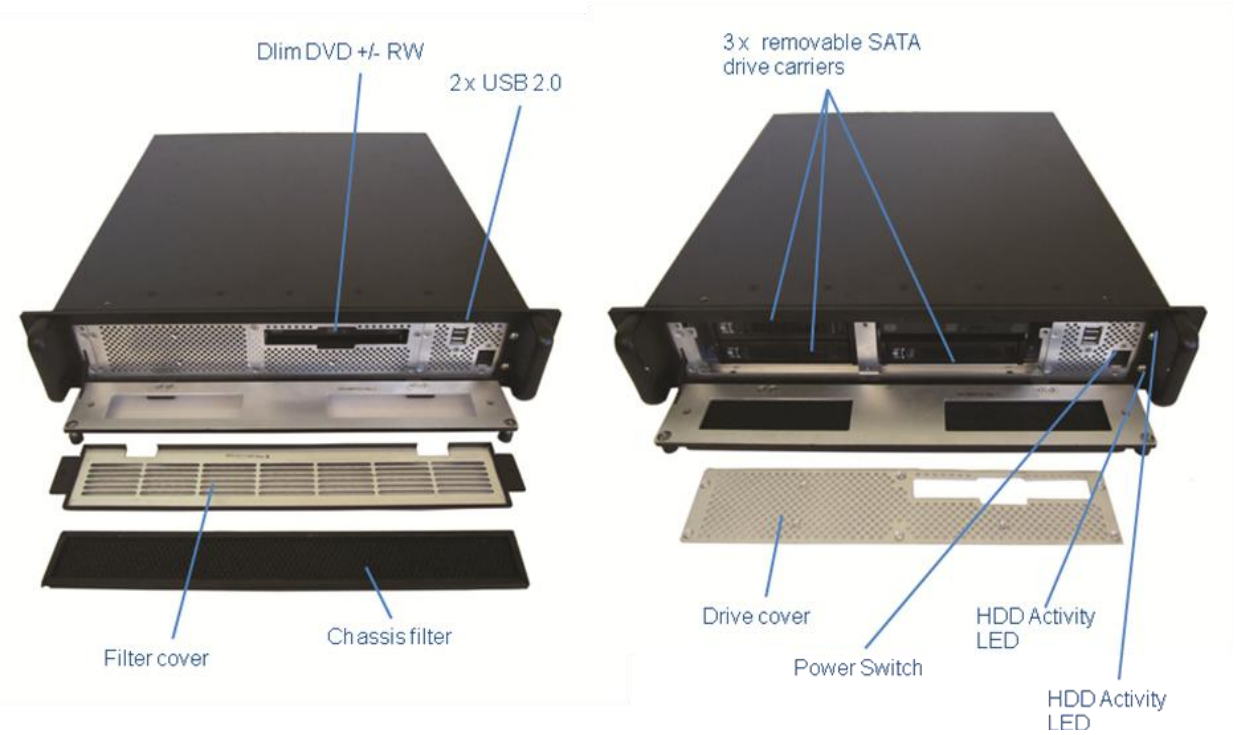


Fig. 9: Front of KISS Oil & Gas 2U (rackmount version) with the front access panel open

6.2.3. Inside the Front Panel

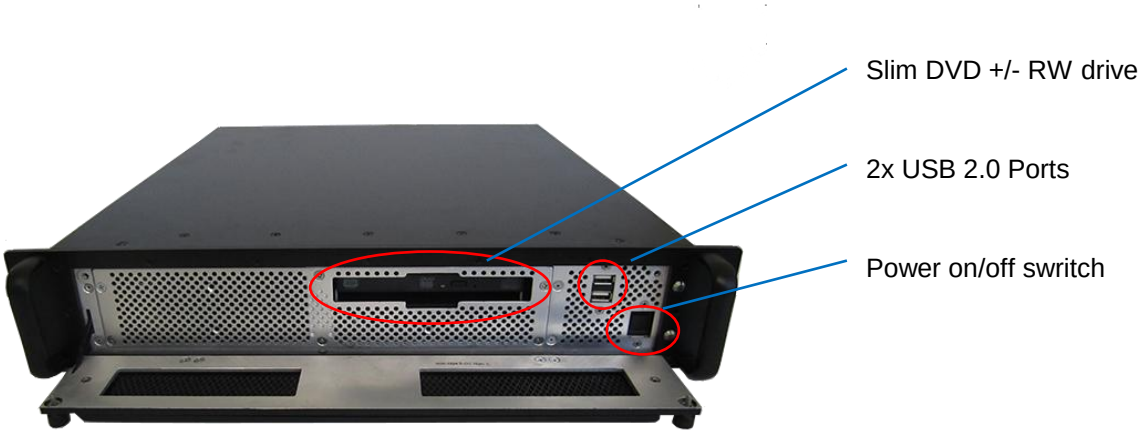


Fig. 10: KISS Oil & Gas 2U access behind the chassis filter cover

6.2.4. Power On/Off Switch

Power On/Off Switch	Press the power switch on the front panel button to switch the system on or off.

Even when you switch the system off using the Power On/Off button, there is still standby power of 5 V to the motherboard.

Switching off the device using the Power On/Off button does not disconnect the computer from the power source. The device is only fully disconnected when you disconnect the power cable from the power source or from the device.

For this reason, ensure that there is easy access to the power cable, including its plug.

6.2.5. Slim DVD +/- RW

The drive can be accessed to insert a DVD disk.

6.2.6. USB Ports

KISS Oil & Gas 2U has two USB (2.0) ports on the front. Various USB-compatible peripherals can be connected to these ports.

6.2.7. Drive Bays

The following drive bays are accessible from behind the drive cover:

Drive bays	2U Rugged Rackmount Server
2.5" or 3.25" HDD or Solid State Drives	3x. External accessible shock mounted drive bays
Optical Drive	1x External accessible slim DVD +/- RW

Fig. 11: Front of system behind drive cover showing optical and hard drives

6.3. Rear Panel

On the rear panel of the KISS Oil & Gas 2U you will find the external interfaces of the integrated motherboard. A detailed ports description can be found in the manual for the KTQ77/Flex motherboard. You can download the corresponding manual from our web site www.kontron.com by selecting the product. Since Kontron designs the motherboard and the system, the system has been optimized to ensure high MTBF.

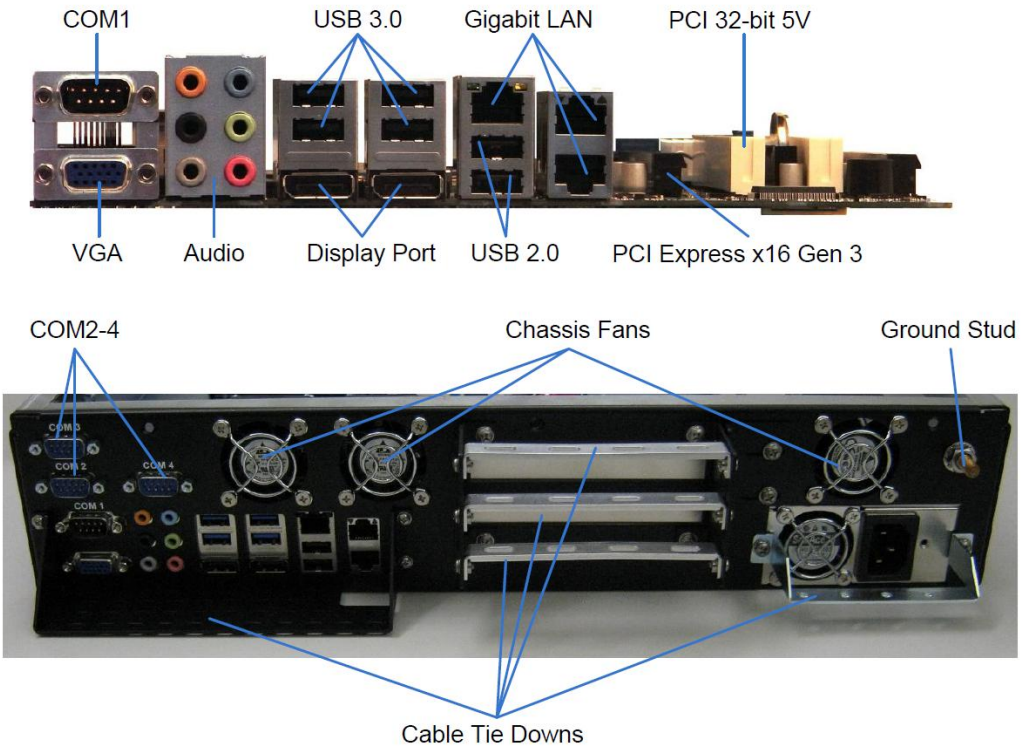


Fig. 12: Rear side of the KISS Oil & Gas 2U

6.3.1. USB Ports

4x USB 3.0 ports and 2x USB2.0 ports are available from the rear of the system.

6.3.2. LAN Ports

3x 10/100/100 (GB) LAN ports are available from the rear of the system.

6.3.3. COM 1-4 Ports

COM1, COM2, COM3 and COM4 ports are accessible from the rear of the system on the left side. The ports are provided as 9-pin D-SUB connectors; (RS232) configured to allow the connection of a serial peripheral.

6.3.4. DisplayPorts

2x DisplayPorts are accessible right below the USB 3.0 ports.

6.3.5. VGA Port

A single VGA port is accessible below the COM1 port. The interface connector is provided as a 15-pin D-SUB socket and allows the connection of an external (analog) monitor.

6.3.6. Audio Ports

6x Audio are accessible from the rear of the system. These jack connectors (3.5 mm) can be used to connect speakers/headphones (Line-Out), audio devices (Line-In) and microphones (Mic-In). The KT77/Flex motherboard supports 3-channel audio output.

6.3.7. Audio Connections

For 4, 6 or 8-channel audio support:

Color of the audio connection	*4-channel*	*6-channel*	*8-channel*
Blue	Line-In	Line-In	Line-In
Green	Front speaker out	Front speaker out	Front speaker out
Pink	Mic-In	Mic-In	Mic-In
Orange	-	Center/Subwoofer	Center/Subwoofer
Black	Rear speaker out	Rear speaker out	Rear speaker out
Gray	-	-	Side speaker out

6.3.8. Ground Stud

A ground stud is mounted in the rear of the system to provide support for electrically noisy environments.

6.3.9. Chassis fans

3x chassis fans are mounted to the back panel of the system.

6.3.10. Cable tie downs

To ensure reliability in volatile environments cable tie downs can secure the cables to the system in either a Rackmount or desktop environment.

6.4. Rugged Features for Oil & Gas Customers

The KISS Oil & Gas 2U has features that have been designed to meet the needs of the oil and gas industry. These include:

Shock Mounted Drive Bays

Each drive bay has been shock mounted to provide greater data integrity when the system is repositioned or subjected to harsh environments.

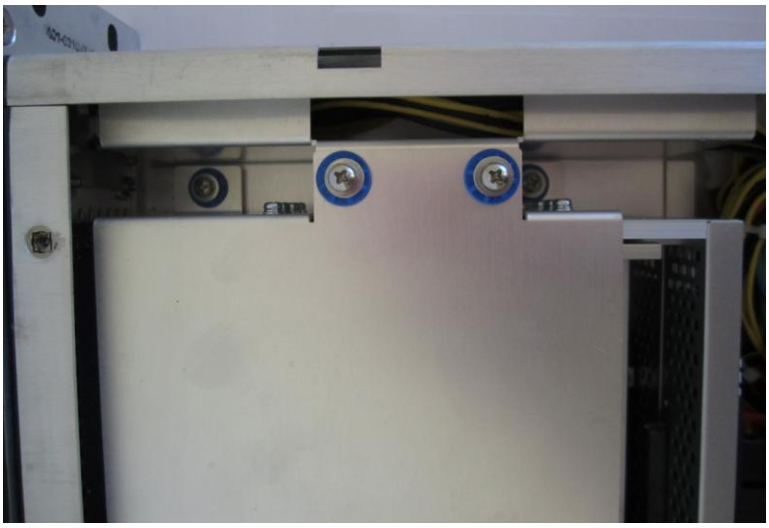


Fig. 13: The KISS Oil & Gas 2U has shock mounted drive bays

6.4.1. Expansion Card Brackets

Adjustable expansion card hold down brackets protect customer added expansion cards.

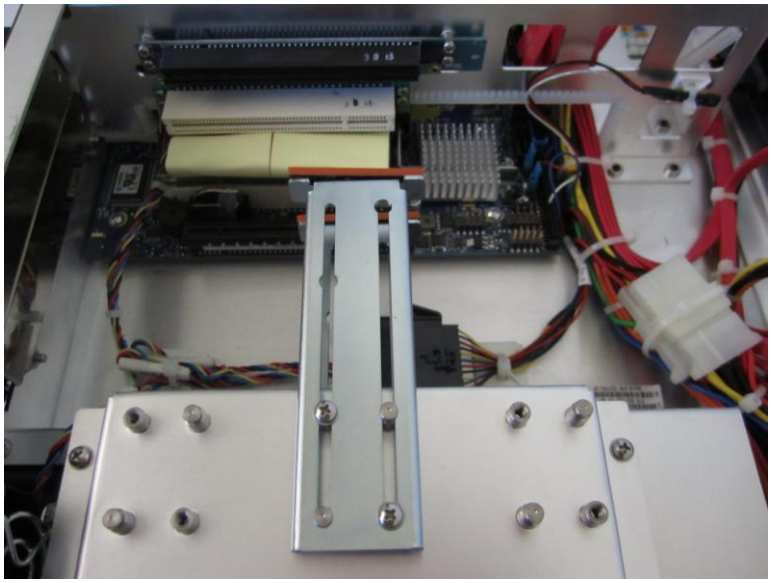


Fig. 14: The 2 expansion card brackets may be adjusted as needed

6.4.2. Memory Hold Down Bracket

Memory is protected by a hold down bracket.

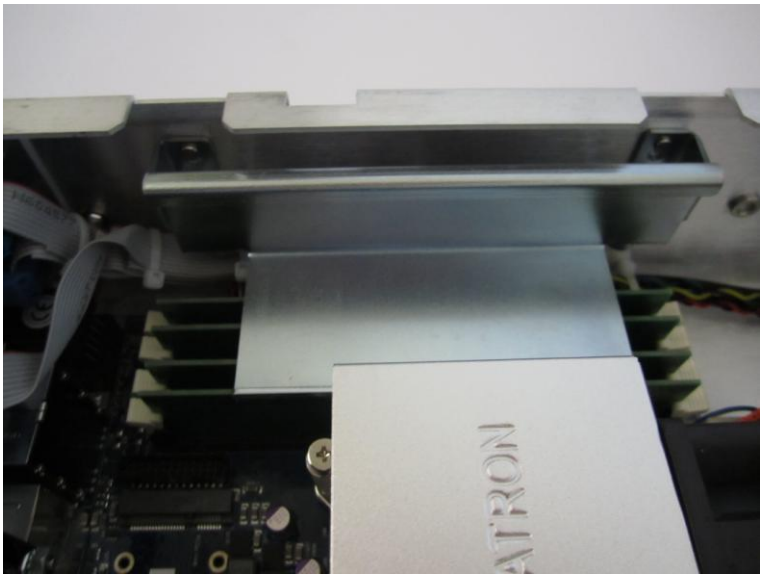


Fig. 15: Memory hold down bracket

6.4.3. Cable tie downs

Most I/O ports are located on the rear panel of the KISS Oil & Gas 2U. To ensure reliability in volatile environments cable tie downs can secure the cables to the system in either a rackmount or desktop configuration. Customer should provide the cable ties as needed.

6.4.4. Chassis filter

The filter behind the front panel of the KISS Oil & Gas 2U extends to cover all areas of the front of the system that could be exposed to harsh environment, such as wind blowing dust.

6.5. System Block Diagram

It is often helpful to look at the block diagram of a system to better understand system functionality. The diagram displays the connectivity with the motherboard for ports.

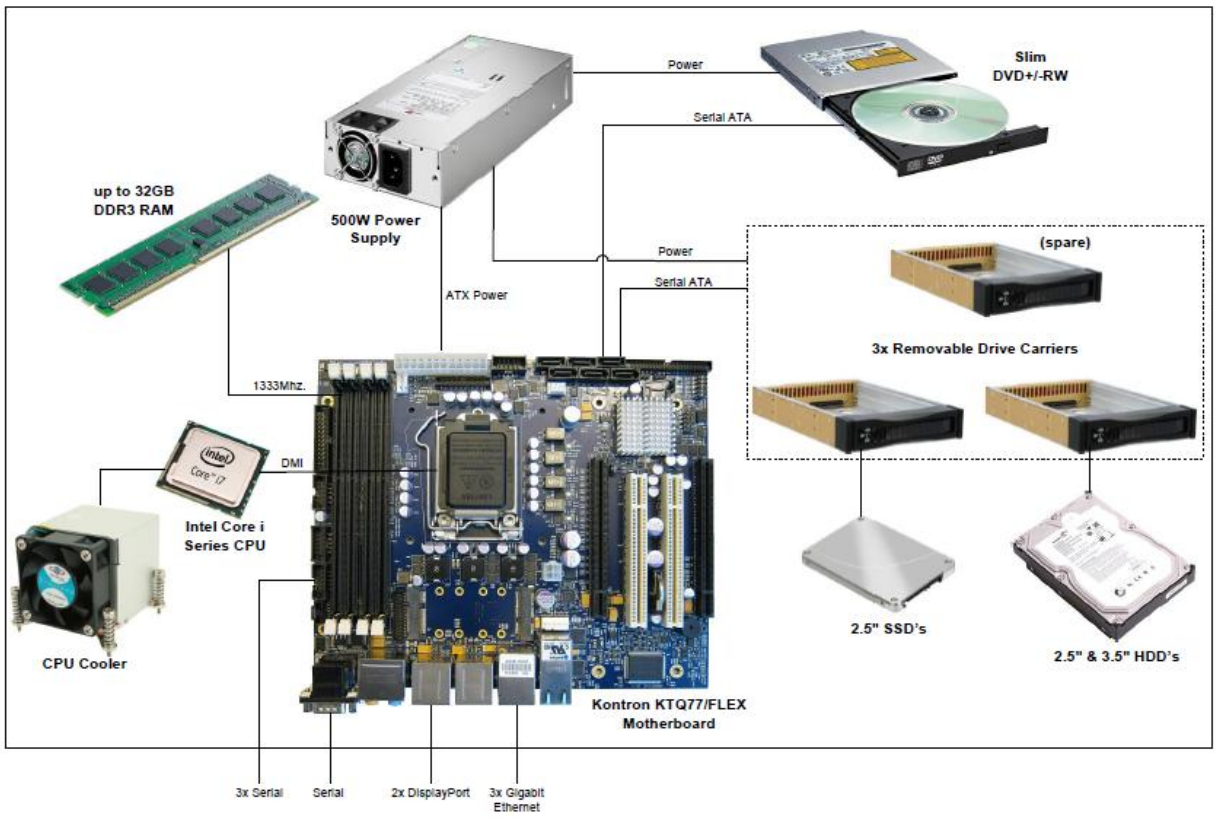


Fig. 16: Block diagram for the KISS Oil & Gas 2U

Please note that the CPU selected by the customer to meet processing requirements is added to the motherboard. The CPU cooler fan is mounted on the motherboard to provide cooling for the CPU. An example of a memory card is shown. Drives and drive carrier bays are also shown.

6.6. Side View

On the left and right sides of the device, there are five M4 threaded screw holes, for installing the KISS Oil & Gas 2U in a 19-inch industrial cabinet using slide rails [refer to the chapter "Slide Rails".]

Fig. 17: There are 5 threaded screw holes (M4) for attaching the optical slide rails

6.7. Integrated Motherboard

KISS Oil & Gas 2U utilizes the Kontron KTQ77/Flex motherboard which supports the Intel® Q77 chipset and Intel® 3rd Generation Core™ i Series processors.

More information and technical data can be found in the corresponding board manual.

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

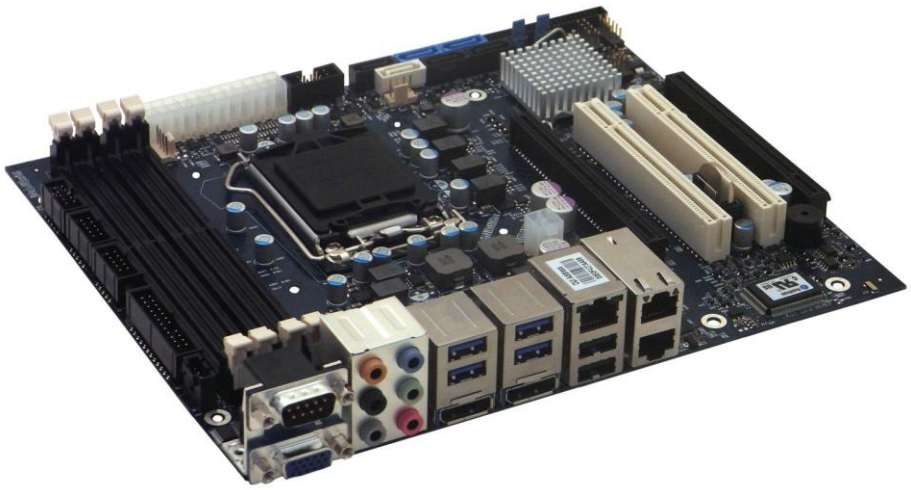


Fig. 18: Kontron KTQ77/Flex Motherboard

6.7.1. Expansion Slots

Depending on the configuration ordered, you can expand your system with full height, half length additional cards.

System	*Integrated Board*	*Expansion*
2U Rugged	KTQ77/Flex	1x PCI Express x16 Gen 3
		1x 32-bit 5V PCI

7. Installation and Removal

7.1. Attaching the Optional Rubber Feet

If the system is to be used as a desktop version, the optional rubber feet (order Kontron part number 529-0043-00.

To attach the rubber feet, proceed as follows:

☞ Before attaching the rubber feet, ensure that your system is switched off and disconnected from the power source.

1. Ensure that all components are securely installed and that the device cover has been screwed on tightly.
2. Turn the device upside down on a table or desk.
3. Remove the protective film from the rubber feet.
4. Stick the four rubber feet to the underside of the unit.

8. Accessing Internal Components

This section contains important information that you must read before accessing the internal components. You must follow these procedures properly when handling any boards or replacing the fan slide in module.

8.1. Removing/Reattaching the top Chassis Cover

The cover will be fixed to the chassis using two screws in the front side of the cover. The screws are fixed to a screw bracket visable when the cover is off.

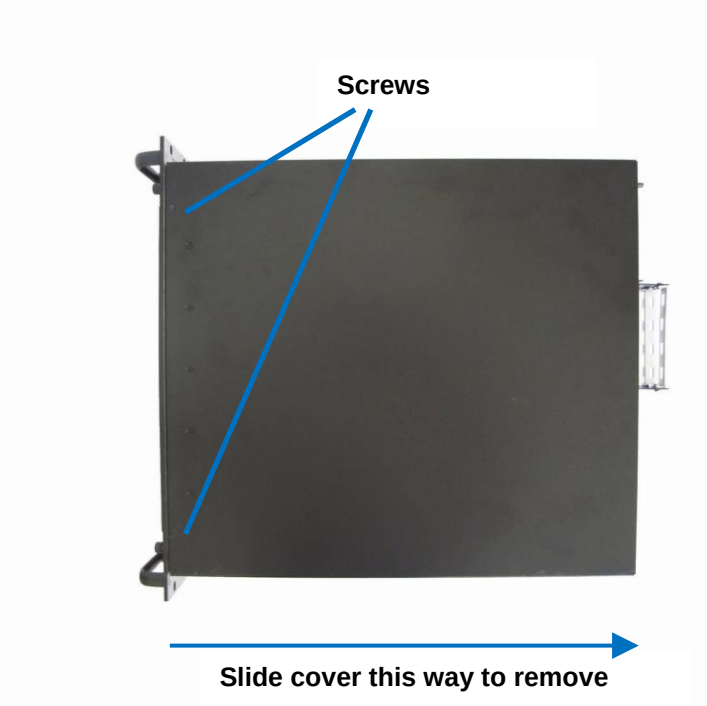


Fig. 19: KISS Oil & Gas 2U with cover closed

Fig. 20: Open to show Front Screw Fixing Bracket

☞ Please take good care of the screws while the cover is open.

8.2. Removing/Reattaching the Drive Cover

To remove or reattach the drive cover unscrew the 6 screws shown.

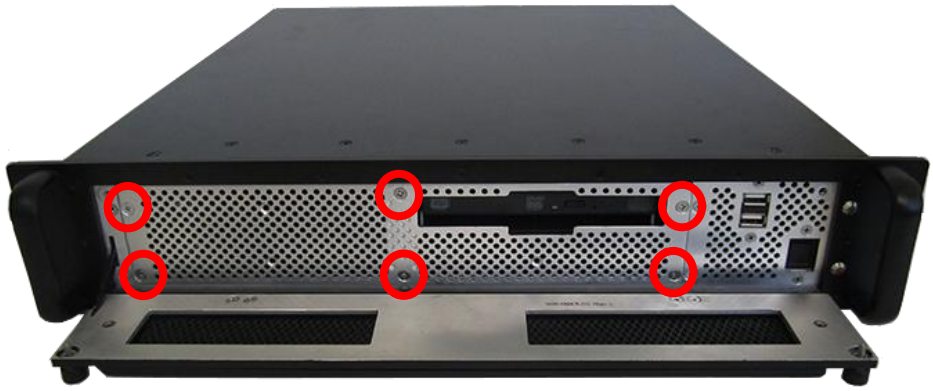


Fig. 21: 6 Screws in the Drive Cover

☞ Please take good care of the screws while the cover is open.

8.3. Installing/Removing Hot-Swap Drives

There are three removable drive bays included in the KISS Oil & Gas

Fig. 22: 2 of the 3 removable drives behind the drive cover

Fig. 23: Gently pull open drive bay and remove/replace the drive.

To install or remove the drives:

1. Remove the chassis drive cover.
2. Unlock the drive bay by Moving the lock counterclockwise (to the left).
3. Push the left side of the drive carrier to release
4. Gently pull open drive bay and insert/replace drive using screws provided
5. Reinsert drive bay by gently push back into the system.
6. Relock drive bay cover.

8.4. Installing Expansion Cards

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

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

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

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

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

To install or remove an expansion card proceed as follows:

1. Switch your system off and disconnect it from the main power supply.
2. Remove the two screws, which secure the cover on the top front of the system.
3. Pull the cover back and remove it.
4. Loosen phillips pan-head screw securing each expansion port filler plate.
5. Slide the expansion port filler plates to the right tightening them temporarily once enough space is made to install/remove card.
6. Place the expansion card in or pull it out of the PCI bay on the motherboard and secure the cards
7. Adjust the expansion card hold down brackets to protect the cards.
8. Close the device and secure the cover with the screws.

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

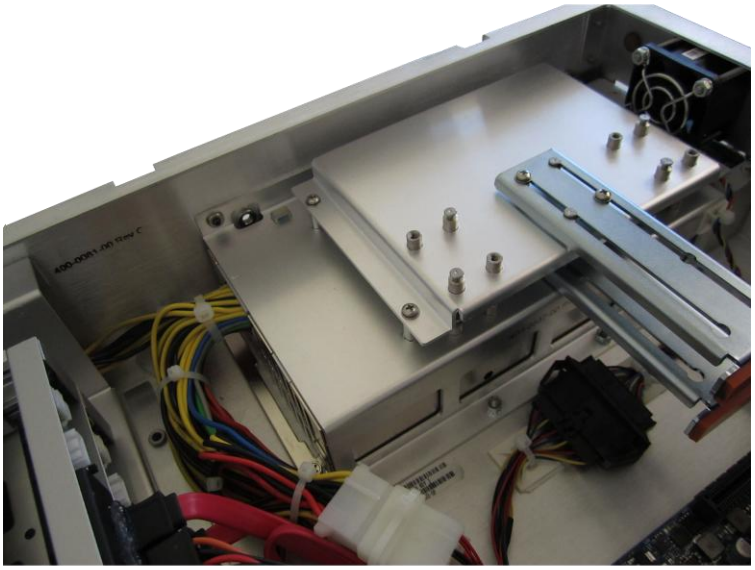


Fig. 24: : Inside of System showing Brackets that hold the Added Expansion Cards

8.5. Adding System Memory

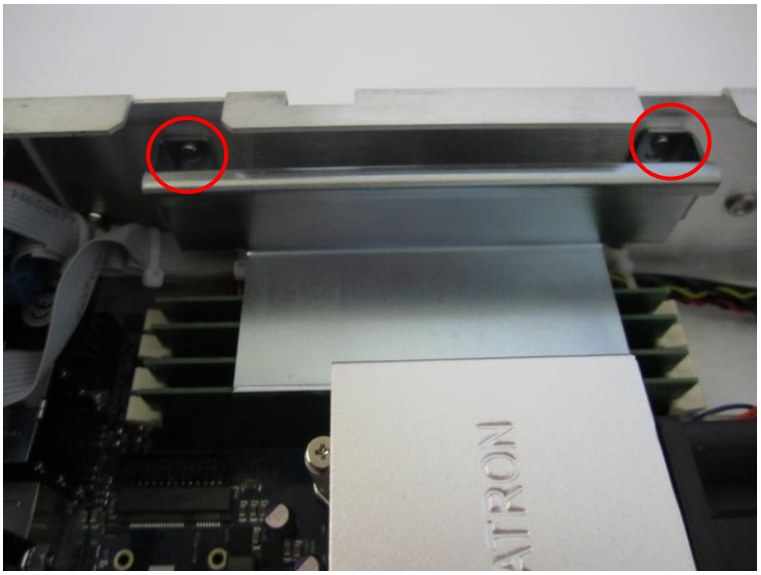


Fig. 25: Memory cards with memory hold down bracket

The KTQ77/FLEX motherboard has four DDR3 UDIMM sockets. The sockets support the following memory features:

- 4x DDR3 1.5V UDIMM 240-pin
- Dual-channel with 2 UDIMM per channel
- Single/dual rank unbuffered 1333/1600MT/s (PC3-10600/PC3-12800) The supported 2nd Generation Core i5 support 1066/1333 MT/s

  From 1GB and up to 4x 8GB.

  Note: Less than 4GB displayed in System Properties using 32bit OS (Shared Video Memory/PCI resources is subtracted)
- SPD timings supported
- ECC not supported

The installed DDR3 DIMM should support the Serial Presence Detect (SPD) data structure. This allows the BIOS to read and configure the memory controller for optimal performance. If non-SPD memory is used, the BIOS will attempt to configure the memory settings, but performance and reliability may be impacted.

Steps for Inserting/Removing Memory

1. Unscrew memory protection bracket from the chassis side wall by unscrewing the two screws on the memory hold down bracket (see figure 25)
2. Insert and attach the memory cards to the motherboard.
3. Reattach the memory card hold down bracket.

In order to support Intel ® AMT (Management Engine) SLOT A0 **must** always be populated. In case of using more than a single DIMM it is recommended to populate A0 + B0 first.

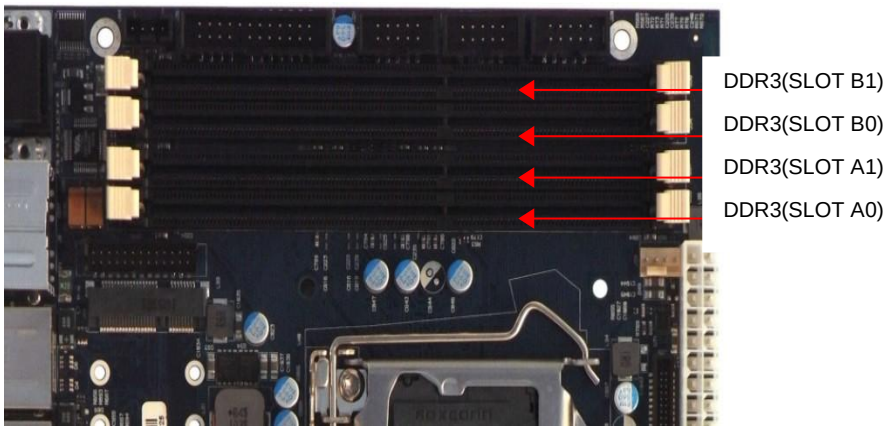


Fig. 26: Motherboard showing slots for inserting memory

8.6. Installation in a 19-inch Industrial Cabinet

Expansion card installation should be performed before installing the KISS Oil & Gas 2U into an industrial cabinet or into a control panel.

Refer to the "Installing Expansion Cards" section

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

Once all peripherals are connected, position the system in the rack, desktop or control panel and use the cable tie downs to further secure the system.

Important instructions!

The device must only be incorporated and installed by specialists who are qualified in this field.

The Widlcat 2U should be installed in a 19-inch industrial cabinet using slide rails unless reconfigured for desktop usage.

Ensure that air flow around the device is adequate when installing the KISS Oil & Gas 2U

Ensure that the air inlet and outlet openings are kept clear and free from any obstructions.

Leave at least 5 cm (approx. 2") of free space to the front and rear of the KISS Oil & Gas 2U when installing it from the 19" industrial cabinet, in order avoid possible overheating.

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

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

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

The model and serial number label is located inside the unit on right side as well as on the bottom of the chassis.

9. Starting Up

Starting up the system.

9.1. Connecting the Power Cable and Switching On

The AC main input socket is located on the back of the KISS Oil & Gas 2U.

☞ The power source voltage must match the voltage on the type label inside the unit.

Fig. 27: Back of KISS Oil & Gas 2U showing power cable socket on the right side of the system

Fig. 28: Power switch behind front chassis cover

To connect the power cable, proceed as follows:

1. Plug the AC power cord into the system's AC power socket.
2. Plug the other end of the AC power cord into a corresponding power outlet.
3. Turn the device ON via the power switch located at the front of the system behind the front chassis cover.

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

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

9.2. Operating System and Hardware Component Drivers

Your computer can optionally be supplied with or without pre-installed operating system.

If you have ordered your KISS Oil & Gas 2U with pre-installed operating system, all drivers are installed, corresponding to the ordered computer configuration (optional hardware components). Your computer is fully functional when you turn it on for the first time.

Since Kontron works closely with Intel® at the board level some of the key Intel system management software and hardware functionality is enabled in the KTQ77/Flex motherboard and the KISS Oil & Gas 2U. Oil & Gas industry companies can benefit from remote system management and enhanced security.

- Intel® Active Management Technology (Intel® AMT 8.0), supported by Core i5 and Core i7 allows Oil & Gas companies to better discover, repair, and protect their networked computing assets. With built-in manageability, Intel AMT allows IT management to discover assets even while platforms are powered off. Intel AMT allows IT to remotely remediate and recover systems after OS failures. Out-of-band alerting and event logging also help to reduce downtime.

- The Intel® Trusted Platform Module (TPM) is a hardware-based security crytographic device that addresses the growing concern on boot process integrity and offers better data protection. TPM protects the system start-up process by ensuring it is tamper-free before releasing system control to the operating system. A TPM device provides secured storage to store data, such as security keys and passwords. In addition, a TPM device has encryption and hash functions. The Intel® TPM module implements TPM as per TPM PC Client specifications revision 1.2 by the Trusted Computing Group (TCG).

- A TPM device has been affixed to the Kontron motherboard of the server and is secured from external software attacks and physical theft. A pre-boot environment, such as the BIOS and operating system loader, uses the TPM to collect and store unique measurements from multiple factors within the boot process to create a system fingerprint. This unique fingerprint remains the same unless the pre-boot environment is tampered with. Therefore, it is used to compare to future measurements to verify the integrity of the boot process.

If you have ordered your KISS Oil & Gas 2U without pre-installed operating system, you have to install the operating system and the corresponding drivers for the ordered computer configuration.

The needed drivers can be downloaded from the web page www.kontron.com by selecting the product.

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

10. Maintenance and Prevention

Kontron America systems only require minimal maintenance and care to keep them operating correctly. The harshness of the installation environment should be considered when determining the maintenance schedule. If the system will be subjected to frequent particulate matter, such as heavy dust, then maintenance should be more frequent.

- Routinely wipe the system with a soft dry cloth.
- Remove persistent dirt by use of a soft, slightly damp cloth (only use a mild detergent).
- Clean the chassis filter and drive bay filters regularly.

10.1. Cleaning the Chassis Filter

Cleaning frequency depends on the operating environment. If the chassis filter is too dirty, the 2U Rugged Server can overheat or at least warm up excessively. Therefore we recommend to clean the chassis filter as often as possible depending on the degree of pollution. The chassis filter which is accessible via the front access panel can be changed even if the system is powered up.

Fig. 29: Remove front cover to access the chassis filter

Fig. 30: Chassis Filter

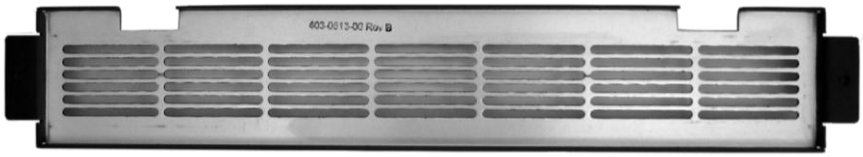


Fig. 31: Back side of ventallation cover where chassis filter fits.

To clean or replace the chassis filter, proceed as follows:

1. Remove the filter cover by unscrewing the two knurled screws on the front.
2. Remove the dirty chassis filter by lifting it off the front ventalation cover. It fits securely. There are no screws to hold the filter in place.
3. Replace the dirty filter with a new filter (Kontron part 409-0174-00) or clean the existing filter.
4. Clean the chassis filter as follows:
   - » Rinse in water (up to approx. 40°C/104°F; you may add a mild commercial detergent).
   - » It is also possible to beat it, suction clean it or blast it with warm compressed air.
   - » If the filter is soiled with greasy dust, you should rinse it with warm water with degreaser added. Do not clean the air filter mat with a piercing jet of water or wring it out.
5. After cleaning and drying the chassis filter, place it in the filter cover holder with ventilations. Re-attach the chassis cover to the front of the chassis.
6. Screw the chassis filter cover to the chassis front.

A defective chassis filter may be replaced only by a Kontron original spare part.

- » Chassis filter: Part number: 409-0174-00

10.2. Replacing the Lithium Battery

The motherboard for your system is equipped with a lithium battery. To replace the lithium battery, proceed as follows:

1. Open the device, as described in the "Installing Expansion Cards" chapter.
2. If you have added expansion cards to your system, first remove the expansion cards plus all the corresponding connecting cables, to gain access to the lithium battery.
3. Remove the lithium battery from the holder by pulling the ejector spring outwards.
4. Place a new lithium battery in the battery holder.
5. When doing this, pay attention to the polarity of the battery (the plus should be at the top).
6. The lithium battery must only be replaced with the same type of battery or with a type of battery recommended by Kontron America.
7. Re-position the expansion cards and re-attach the connecting cables.
8. Close the device, as described in the "Installing Expansion Cards" chapter.

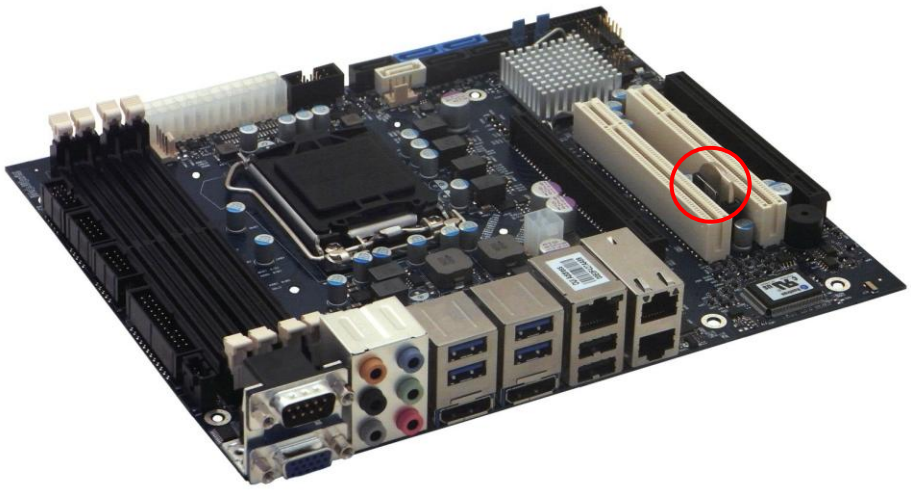


Fig. 34: Kontron KTQ77/Flex Motherboard with memory marked out

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

11. Slide Rails

Slide rails are included for installing the KISS Oil & Gas 2U in an industrial cabinet.

Fig. 35: Side system view: Attaching the inner section of the slide rails 5x M4x6 round headed screws for each side

Fig. 36: Side system view: Rackmount slides

☞ Please ensure that only the screws provided (M4x10) are used to attach the slide rails to the KISS Oil & Gas 2U.

11.1. Slide Rails Accessories and Assembling

The "Slide Rails" set consists of the items listed below and are installed as shown below:

- One pair of slide rails
- One pair of short brackets for the front (with screws and washers)
- One pair of long brackets for the back (with screws and washers)
- 2x bar nut kits
- 8x M4x6 flathead screws

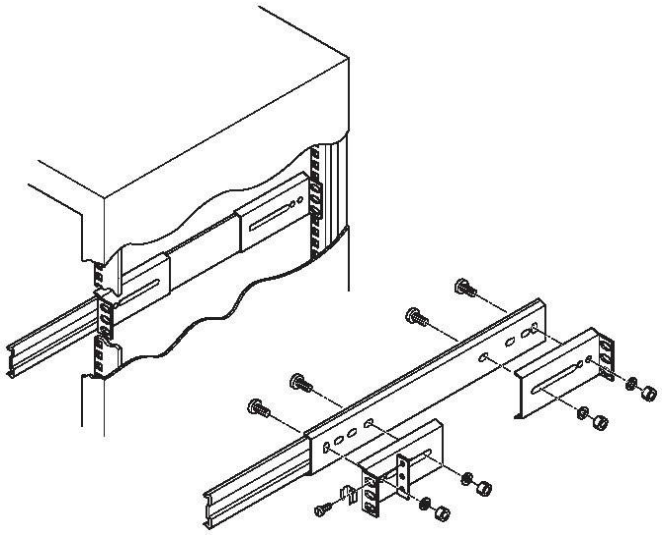


Fig. 327: Installing telescopic rail sets

Short brackets are generally used at the front of the frame and long brackets at the back.

11.1.1. Installing the Device in an Industrial Cabinet (using Slide Rails)

1. Ensure that the sides of the KISS Oil & Gas 2U chassis are parallel and square to the industrial cabinet.
2. Use the installation kits and brackets to attach the brackets to the telescopic rails. Loosely tighten the rear bracket.
3. Install the telescopic rails in the industrial cabinets.
4. Attach the inner section of the telescopic rails to the KISS Oil & Gas 2U chassis.
5. Place the KISS Oil & Gas 2U in the industrial cabinet.
6. Check that the equipment moves evenly and smoothly.
7. Should it snag or should the rail movement be unsatisfactory:

» Loosen the screws on the rear installation brackets and adjust the brackets.
» Loosen the screws on the KISS Oil & Gas 2U chassis.
» Move the unit back and forward several times.
» When the movement has improved, tighten the screws and move the unit the unit back and forward again.

12. Technical Data

12.1. Technical data summary

KISS Oil & Gas 2U	KTQ77/Flex
Installed Board	
KTQ77/Flex	1x
Interfaces (Rear)	
LAN (10/100/1000Mbps)	3x
USB 2.0	4x
USB 3.0	4x
COM (1-4)	4x
VGA	1x
Line-In (blue)	1x
Line-Out (green)	1x
Microphone (pink)	1x
Audio (orange)	1x
Audio (black)	1x
Audio (grau)	1x
Interfaces (Front)	
USB 2.0	2x
Accessible Hard Disk Drive	
3.5 HDD or SSD (optional)	1x
Slim Optical Blu-Ray/DVD	1x
Free Expansion Slots	
PCI Express x16 Gen 3	1x
32-bit SV PCI	1x

12.2. Lithium battery

Lithium Battery	CR2032; 3.0 V; 0.22Ah
Controls (on the front)	Power On/Off button (on the front)
Indicators (on the front)	Power-LED (green) HDD-LED (orange)
AC Power Plug (on the back)	1x AC Wide Range

12.3. Power Specification for Expansion Boards

Power specification (max. power values depending on customer-specific applications)	Power consumption per bay (PCI)	max. 25 W

12.4. Electrical Specifications

System Type	Product Designation	Integrated Power Supply Unit (PSU)	Input
KISS Oil & Gas 2U	KISS Oil & Gas 2U	AC PSU Wide Range 500 W	V: 100-240 Hz: 47-63 A: 4-8 DC

12.5. Mechanical Specifications

Dimensions	KISS Oil & Gas 2U (Standard Version)
Height	2U: 88.9 mm (3.5")
Width	Front Chassis: 483 mm (19.0")
Depth	Chassis: 484 mm (19.06"")
Weight (Excl. packaging)	Approx 10.00 kg (22 lbs.)
Housing	Chassis, black Front access panel

12.6. Environmental Specifications

Ventilation	1x power supply fan 3x system fan (temperature controlled)
Operating Temperature / Humidity	0 to +50°C operating -40 to +70 °C non-operating
Storage / Transport Temperature / Relative Humidity	-40 to +70 °C non-operating
Max. Operating Altitude	3,048 m (10,000 ft)
Max. Storage / Transport Altitude	10,000 m (32,810 ft)
Operating Shock	15 G, 11 ms duration, half sine
Storage / Transit Shock	30 G., 11 ms duration, half sine
Operating Vibration	10 – 500 Hz, 5.0 G
Storage / Transit Vibration	10 – 500 Hz, 5.0 G

12.7. CE Standards & Directives

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

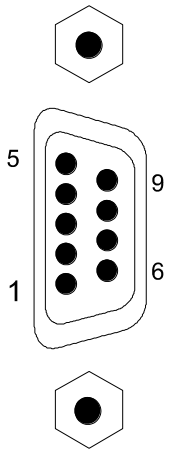
EMC	Harmonized Standards
U.S.A.	FCC 47 CFR Part 15, Class A
CANADA	ICES-003, Class A
EUROPE	Generic emission standard for industrial environments (Emission): EN 61000-6-4:2006 Generic standards - Immunity for industrial environments (Immunity): EN 61000-6-2:2005

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

13. Standard Ports – Pin Assignment

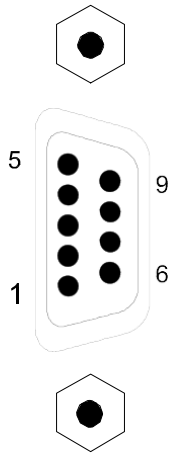
Pin assignments for the serial ports, VGA port and USB ports follow.

13.1. Serial port COM1 (RS232)

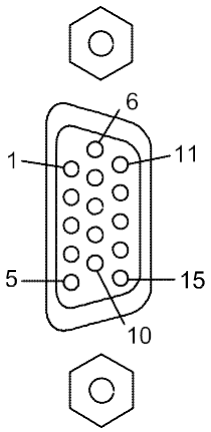
Pin	Signal Name		9-pin D-SUB Connector (male)
1	DCD	(Data Carrier Detect)	
2	RXD	(Receive Data)	
3	TXD	(Transmit Data)	
4	DTR	(Data Terminal Ready)	
5	GND	(Signal Ground)	
6	DSR	(Data Set Ready)	
7	RTS	(Request to Send)	
8	CTS	(Clear to Send)	
9	RI	(Ring Indicator)	

13.2. Serial port COM 2 / 3 / 4

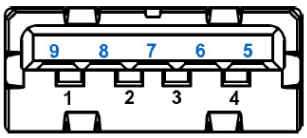
The pinout of Serial ports COM2, COM3 and COM4 is as follows:

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

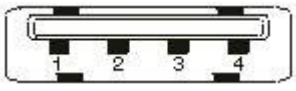
13.3. VGA Port

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

13.4. USB 3.0 Port

Pin Signal Name				9-pin USB Connector Type A Version 3.0/2.0
USB 2.0 contact pins		USB 3.0 contact pins		
1	VCC, fused (900 mA max.)	5	StdA_SSRX-	
2	Data-	6	StdA_SSRX+	
3	Data+	7	GND_DRAIN	
4	GND	8	StdA_SSTX-	
		9	StdA_SSTX+	

13.5. USB 2.0 Port

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

14. Technical Support

For technical support, please contact our Technical Support team:

Tel: 800-480-0044

e-mail: support@us.kontron.com

Have the following details ready:

- The model number of the device. This is based on the configuration your company has selected for the device. It is used in ordering the device from Kontron. The model number can be found on the name plate inside the top cover of the device.
- The unit's serial number. The serial number can be found on the name plate inside the top cover of the device.

Explain the nature of your problem to the service technician.

Should you require further information about Kontron America, our products or services, please contact us on the aforementioned telephone number, or at: www.kontron.com or write to us at:

Kontron America
14118 Stowe Drive
Poway, CA 92064-7147

14.1. Returning of Goods

All equipment returned to Kontron must have a Return 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 return freight charges back to the Buyer's location in the event that the equipment is repaired or replaced within the warranty period stipulated herewith.

14.2. To request a Return Material Authorization (RMA) number

Be prepared to supply the unit serial number, reason for return and original ship date

Place call to 800-480-0044 to receive RMA number (toll free in the US and Canada) "OR"

E-mail the information to support@us.kontron.com to receive RMA number and RMA Request Form

Return defective material (unless instructed otherwise with issuance of RMA) to:

14.3. Contact and Delivery Address

Kontron America
14118 Stowe Drive
Poway, CA 92064-7147
Attn: RMA number
Phone: 1-800-480-0044
Email: support@us.kontron.com

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