



## VX305x-RC EFT

CA.DT.B37-0e - June 2017



## VX305x-RC EFT Hardware Release Notes

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Lise-Meitner-Str. 3-5

86156 Augsburg

Germany

[www.kontron.com](http://www.kontron.com)

## REVISION HISTORY

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## Customer Support

Please contact our support team at [support.KFR@kontron.com](mailto:support.KFR@kontron.com)

## 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 <http://www.kontron.com/support-and-services/services>.

## Customer Comments

If you have any difficulties using this manual, 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 manual on our website.

## SYMBOLS

The following symbols may be used in this manual:



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



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



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



**NOTICE** indicates a property damage message.



### Electric Shock!

This symbol and title warn of hazards due to electrical shocks (> 60 V) when touching products or parts of them. 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 boards 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 from an electrical device. Eye protection per manufacturer notice shall review before servicing.



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

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.

#### **CAUTION**

##### **Warning!**

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

#### **CAUTION**



##### **Caution, 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 which 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 Instructions



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

Electronic boards 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.

## 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 manual or received from Kontron's Technical Support as a special handling instruction, will void your warranty.

This product should only be installed 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 board version, that must not be exceeded. If batteries are present, their temperature restrictions must be taken into account.

In performing all necessary installation and application operations, only follow the instructions supplied by the present manual.

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 it in the same manner as it was delivered.

Special care is necessary when handling or unpacking the product. See Special Handling and Unpacking Instruction.

Kontron products may be equipped with parts from Japanese manufacturers. Customers must ensure that final Kontron products destination is not impacted by this condition.

## ENVIRONMENTAL PROTECTION STATEMENT

This product has been manufactured to satisfy environmental protection requirements where possible. Many of the components used (structural parts, printed circuit boards, connectors, batteries, etc.) are capable of being recycled.

Final disposition of this product after its service life must be accomplished in accordance with applicable country, state, or local laws or regulations.




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Environmental protection is a high priority with Kontron.  
Kontron follows the DEEE/WEEE directive.  
You are encouraged to return our products for proper disposal.

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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 they 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

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# 1 / Introduction

This document defines EFT status and limitations.

EFT boards help customers to assess early samples before product release.

EFT boards are in general design-in samples to be used for functional testing and preliminary performance benchmarking, with well-known limitations.

This document refers to the up-to-date release of the following user's guide documentation:

- ▶ VX305x User's Guide ..... CA.DT.B25

## 2 / VX305x-RC EFT Definition

Featuring the Intel® Xeon® D processor family (formerly Broadwell-DE), the VX305x-RC is the first High Core Count multiprocessing RC class board of the Kontron 3U VPX ecosystem. The highly integrated Intel® Xeon® D architecture with Dual 10 Gigabit Ethernet, high bandwidth PCI Express 3.0, high speed DDR4 memory, and versatile mezzanine options, is consequently SWaP-C optimized and simply the best choice for high performance embedded computing platforms.

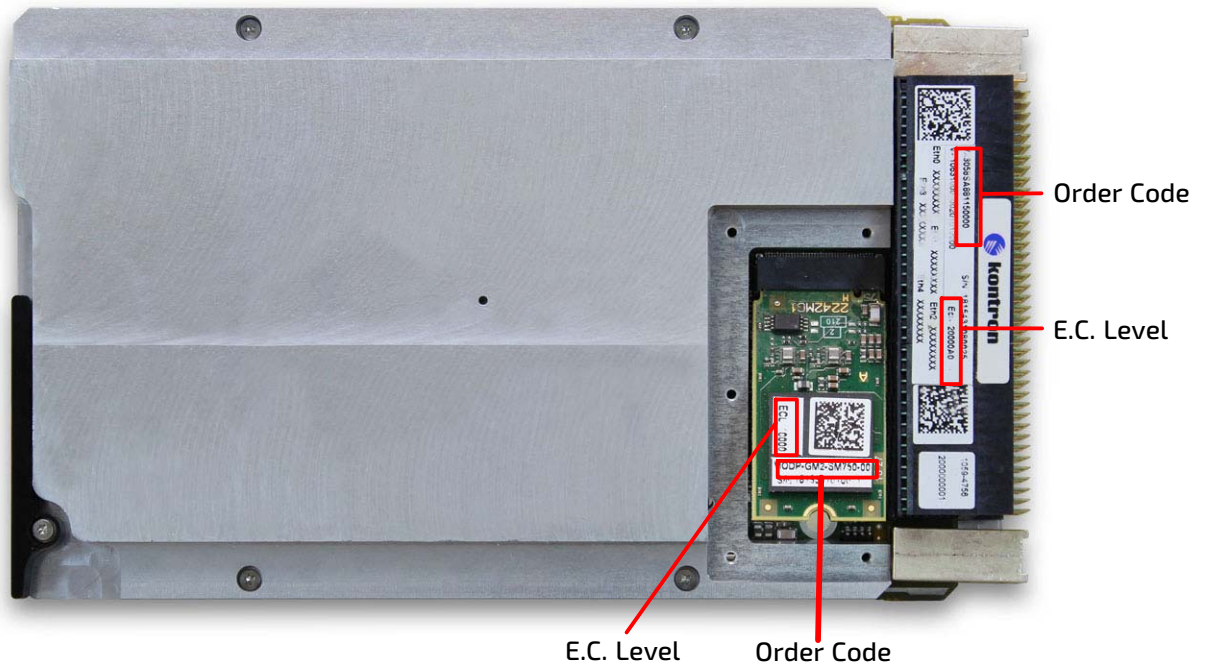
EFT means "Early Filed Trials": EFT boards are released by Kontron to ease customer evaluation, at an early stage, before general product availability.

EFT purpose is to be used solely at research and development stages.

### 3 / VX305x-RC EFT Identification

► Engineering Change Level and Order Code

The Engineering Change Level (E.C. Level or ECL) and Order Code information are available on the "Board Identification" label, located on the top side of the board.



## 4 / General Information

### 4.1 Personal Injuries



- ▶ Do not touch the CPUs heatsink while removing the board from a rack because it can get very hot.
- ▶ Be careful while handling the board, because of the cutting edges of the heatsink.
- ▶ Do not place the board on any surface or in any form of storage container until the board and its heatsink have cooled down to room temperature.

### 4.2 Power Supplies

On +12V power supplies, monotonic rise time shall comply with VS1 VPX standard rise time requirements.

For a power off condition to be valid, the +12V power supply inputs should remain at 0V for at least one second.

+3V3\_AUX power supply is required as defined per VITA 61 standards.

+3V3\_AUX power supply must supply VX305x boards at least one sec before VS1 VPX power supply presence.

### 4.3 Bottom M.2 Module Slot and Microswitches



Make sure heatsink temperature is below 30°C before removing Bottom Type M M.2 module covers.

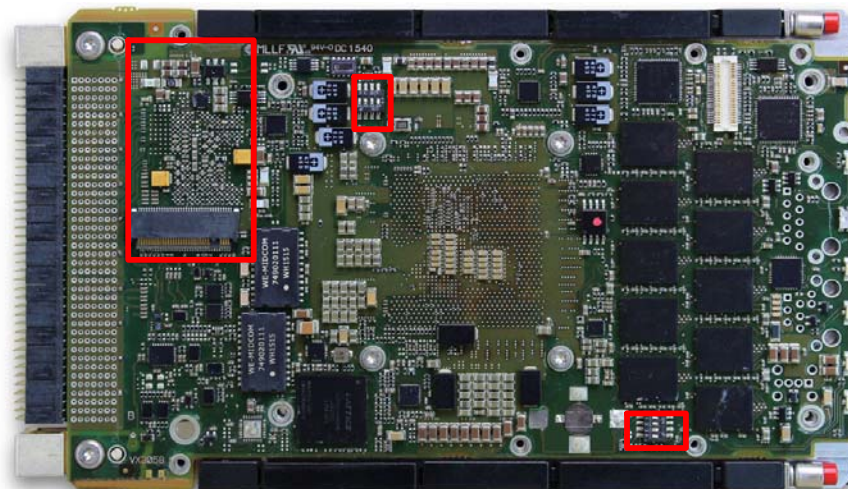
To replace one M.2 module, proceed as follows:

- ▶ Turn off the power.
- ▶ Make sure heatsink temperature is below 30°C
- ▶ Refer to the mounting instruction documents

M.2 modules should be replaced only with equivalent module type (2242, M type, SATA SSD).

It is not allowed to remove M.2 graphic option if graphic module is equipped on the top M.2 slot. Refer to User's Guide for M.2 slots location.

Bottom M.2 module and Microswitches (SW1, SW2) location is shown in the following product bottom view:



## 5 / VX305x-RC EFT specifications

Refer also to the VX305x User's Guide.

### 5.1 EFT configuration Overview

Refer also to the User's Guide for order code description.

EFT	VX3054RC4F015101L	VX3058RC8F015101L	VX3058RC8F115101L
Description	3U VPX VX305x, Conduction cooled, with graphics, bottom M.2 SSD module equipped.		
Processor	Intel Xeon D-1519 (6 M Cache, 4-core, 25 W @ 1.5 GHz)	Intel XeonD-1539 (12M Cache, 8-core, 35 W @ 1.6 GHz)	Intel XeonD-1539 (12 M Cache, 8-core, 35 W @ 1.6 GHz)
Hardware Engineering Level	Minimum ECL 2B001D0	Minimum ECL 2D001D0	Minimum ECL 2D001V0
Main Memory	DDR4-2133 Total amount of memory : 16 GB		
Trusted Platform Module	Infineon SLB9660XQ1.2FW4.40		
Software	Refer to preinstalled software ID on EFT products, or contact Kontron for more information.		
OS Boot device	Refer to the "VX305x - AMI BIOS User Reference Manual", SD.DT.G50.		
Pre-installed LinuxOS option for product evaluation	Pre-installed Bottom M.2 SATA SSD device for variants including "L". Pre-equipped M.2 SSD device purpose is to ease product assessment and is restricted to lab development. Kontron will not Equip bottom M.2 SATA SSD module PN: Virtium V5FBM4XI030G-150		



Warning: Preinstalled M.2 SSD module is delivered on EFT with Linux distribution. Pre-equipped M.2 SSD device purpose is to ease product assessment and is restricted to customer developments in labs. Note that SATA SSD module use and reliability can't be guaranteed by Kontron. Customer may use an external HDD on VPX SATA ports for higher reliability.

## 5.2 EFT Environmental Specifications

Kontron RC class products must comply with Kontron RC class product environmental specifications.

EFT boards are designed to meet Kontron RC class environmental specifications.

VX305x-RC EFT boards are released at an early development stage and will not be fully qualified until general VX305x-RC product availability.

Contact your Kontron support personnel for more information regarding EFT board environmental specifications.



Warning: Pre-equipped M.2 SSD device purpose is to ease product assessment and is restricted to customer developments in labs. Note that EFT environmental specifications do not include pre-equipped bottom M.2 SSD device.

Refer also to VX305x User's Guide - CA.DT.B25 section 1.3.3 for product configuration definition (CFG).

ENVIRONMENTAL SPECIFICATIONS	VX3054RC4F015101L CFG=40 / ECL 2B0XXDX	VX3058RC8F015101L CFG=80 / ECL 2D0XXDX	VX3058RC8F115101L CFG=81 / ECL 2D0XXVX
Plug-in unit type according Vita48.2	Type 2, secondary side retainers	Type 2, secondary side retainers	Type 2, secondary side retainers
Conformal Coating	Standard	Standard	Standard
Airflow	N.A.	N.A.	N.A.
Cooling Method	Conduction	Conduction	Conduction
Operating temperature	-40°C to +85°C <sup>(1)</sup>	-40°C to +70°C <sup>(1)</sup>	-40°C to +85°C <sup>(1)</sup>
Storage Temperature	Contact Kontron	Contact Kontron	Contact Kontron
Sine vibrations (Operating)	Contact Kontron	Contact Kontron	Contact Kontron
Random vibrations (Operating)	Contact Kontron	Contact Kontron	Contact Kontron
Mechanical shocks (Operating)	Contact Kontron	Contact Kontron	Contact Kontron
Altitude (Operating)	Contact Kontron	Contact Kontron	Contact Kontron

<sup>(1)</sup> Maximum temperature measured at card edge in the following conditions: full processor performance, maximum processor TDP without CPU throttling

## 5.3 EFT Features limitations

All product features detailed in the User's Guide are available with the known product limitations described in the following table:

FEATURE	GROUP	STATUS
All SATA ports	VPX P1 rear panel Wafer 9	Available Up to SATA II mode (3Gbps)
VPX P1 x8 PCIe	VPX P1 rear panel Wafer 1-8	Available but up to Gen2 mode (5Gbps).



Product Hardware, BIOS and Board Support Package (BSP) are still in development and product qualification is in progress. Some limitations may be appear or be cancelled according Hardware, BIOS and Linux BSP software updates.

## 5.4 BIOS Release Note

Refer to the "VX305x - AMI BIOS User Reference Manual", SD.DT.G50.

## 5.5 LinuxOS Release Note

Refer to the " VX305x Software Release Notes ", SD.DT.G53.

Variants with "L" option comes with a standard Linux release installed on bottom M.2 SSD device to ease system bring-up and product trials.

Some EFT limitations may be cancelled with future BSP releases.



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How to Log into the system (login and passwd) Root passwd is "kontron".

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## 5.6 Boot Devices

Allowed boot interfaces are: PXE boot, Bottom M.2 SATA slot, VPX P1 port 0 and port1, VPX P1 USB2 port0 and front panel USB2 port.

## 5.7 In Case of Trouble

Contact your Kontron support personnel

- ▶ How to restore or update the boot device or the BIOS  
Contact support.

## 6 / VX305x-RC EFT Board Revision Guide

### 6.1 How to Use the Board Revision Guide Table

E.C. Level or ECL means Engineering change level.

1. Find the E.C. Level associated to your board as described in the chapter 3 "Board Identification" page 3.
2. Find the column associated to the E.C. Level of your board in this table.
3. Check for a specific item in the table lines:
  - 3.1. A X (cross) in the E.C. Level column indicates that this item applies to this E.C. Level.
  - 3.2. No X (cross) in the E.C. Level column indicates that this item does not apply to this E.C. Level.
  - 3.3. If the functionality described by the item is not available on your board don't take into account this item. To know the functionalities available or not on your board, read the User's Guide associated with your board version.




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Each item is fully described in section 6.3 "Item Detailed Description" page 8.

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### 6.2 VX305x-RC EFT Revision Guide Table for Functional E.C. Levels

Item	KDP #	Description	E.C. Levels		
			2B001D0	2D001D0	2D001V0
1	#23672 #23673	+12 V only VPX power supply configuration is not supported	X	X	X
2	#26779	Xeon-D S4 sleep states not supported	X	X	X

### 6.3 VX305x-RC EFT Item Detailed Description for Functional E.C. Levels




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Each item applies only to a specific group of E.C. Levels. Refer to the table available in section 6.2 page 8 to find the specific E.C. Levels associated to a specific item.

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#### Item #1 +12\_V only VPX power supply configuration is not supported

**Description:** At power-up, board may not start without VPX +3.3V\_AUX power supply presence on the board. VPX +3.3V\_AUX power supply presence is required on VPX slots to power-on the board.

**Impact:** The board does not start in a 12\_V only VPX power supply configuration, without VPX +3.3V\_AUX power supply. VPX +3.3V\_AUX power supply is required by VPX standards.

**Solution:** Will be fixed in a future E.C. Level.

**Item #2 Xeon-D S4 sleep state not supported**

Description: Xeon-D S4 sleep state is not supported.  
Impact: Cold reset S4 sleep state is not supported. Only hot reset mode and full board power-down are supported.  
Solution: Will be fixed in future E.C. level.

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## 7 / Rear Transition Module for VX305x-RC EFT Boards

### 7.1 Legacy PB-VX3-4xx Modules

The VX305x-RC supports the PB-VX3-4xx Rear Transition Modules, with I/O limitations defined in the User's Guide CA.DT.B25 and this Hardware Release Notes.

Figure 1: PB-VX3-4xx Rear Transition Module



Because VX305x products are 5HP boards, 5HP rear transition modules are preferred: PB-VX3-401 or PB-VX3-411.

### 7.2 Legacy PB-VX3-5xx Modules

PB-VX3-501 and PB-VX3-511 rear transition modules are preferred when rear HDMI port (HDMI) and a second rear 1000BASE-T port (ETHB) are required. Both HDMI and ETHB ports are fully operational.

PB-VX3-501 and PB-VX3-511 rear transition modules have the same PB-VX3-4xx limitations, except regarding HDMI and ETHB ports

Figure 2: PB-VX3-5xx Rear Transition Module





## About Kontron

Kontron, a global leader in embedded computing technology and trusted advisor in IoT, works closely with its customers, allowing them to focus on their core competencies by offering a complete and integrated portfolio of hardware, software and services designed to help them make the most of their applications.

With a significant percentage of employees in research and development, Kontron creates many of the standards that drive the world's embedded computing platforms; bringing to life numerous technologies and applications that touch millions of lives. The result is an accelerated time-to-market, reduced total-cost-of-ownership, product longevity and the best possible overall application with leading-edge, highest reliability embedded technology

Kontron is a listed company. Its shares are traded in the Prime Standard segment of the Frankfurt Stock Exchange and on other exchanges under the symbol "KBC".  
For more information, please visit: [www.kontron.com](http://www.kontron.com)



## CORPORATE OFFICES

### FRANCE

150, rue Marcelin Berthelot  
ZI de Toulon-Est . BP 244  
83078 Toulon Cedex 9 - France  
Tel: +33 4 98 16 34 00  
Fax: +33 4 98 16 34 01  
sales.KFR@kontron.com

### HEAD OFFICE

Lise-Meitner-Str. 3-5  
86156 Augsburg  
Germany  
Tel.: + 49 821 4086-0  
Fax: + 49 821 4086-111  
info@kontron.com

### NORTH AMERICA

14118 Stowe Drive  
Poway, CA 92064-7147  
USA  
Tel.: + 1 888 294 4558  
Fax: + 1 858 677 0898  
info@us.kontron.com

### ASIA PACIFIC

1~2F, 10 Building, No. 8 Liangshuihe 2nd Str.  
Economical & Technological Develop. Zone,  
Beijing, 100176, P.R. China  
Tel.: + 86 10 63751188  
Fax: + 86 10 83682438  
info@kontron.cn