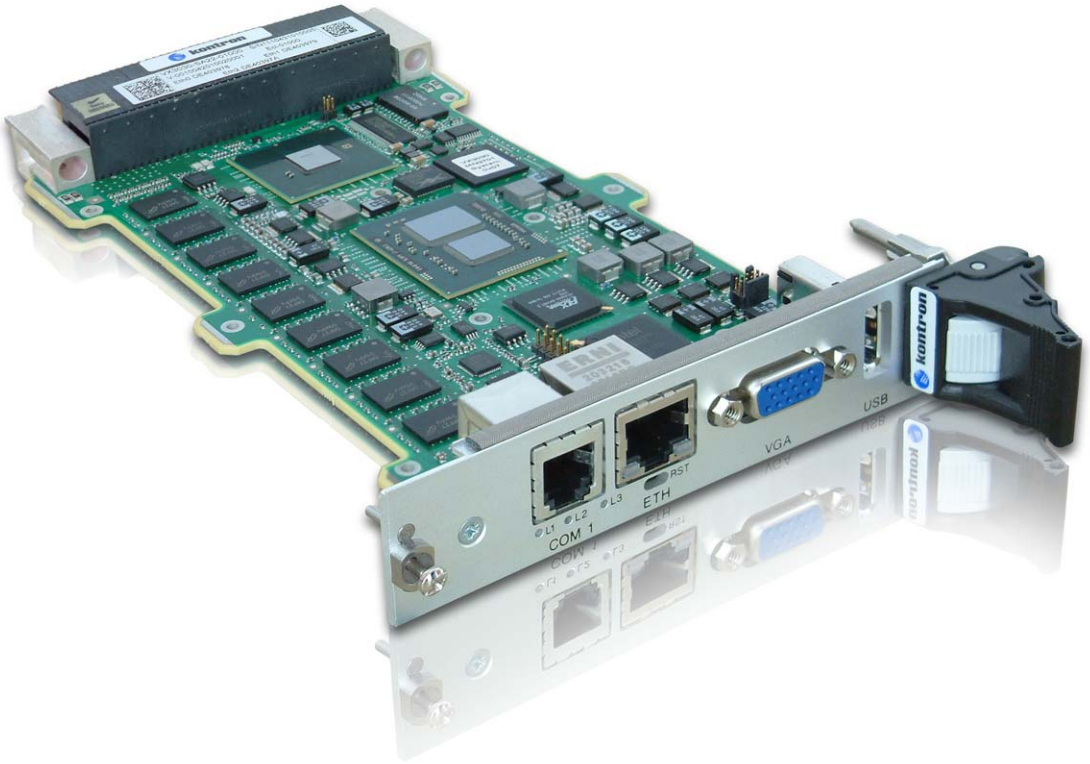
kontron

» VX3030 «



Hardware Release Notes

CA.DT.A88-4e - August 2015

Revision History

Publication Title:	VX3030 Hardware Release Notes	
Doc. ID:	CA.DT.A88-4e	
Rev.	Brief Description of Changes	Date of Issue
4e	New E.C. Level: 01x17	08-2015
3e	New E.C. Levels: 01016 and 01116 New section: Mechnanical E.C. Levels (xxxxxD0, xxxxxD1)	10-2014
2e	New E.C. Levels: 01005, 01014 and 01015	02-2013
1e	New E.C. Levels: 01002, 01003 and 01004	02-2012
0e	Initial Version	04-2011

Proprietary Note

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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.

Environmental protection is a high priority with Kontron.

Kontron follows the DEEE/WEEE directive.

You are encouraged to return our products for proper disposal.

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

Conventions

This guide uses several types of notice: Note, Caution, ESD.

Note: this notice calls attention to important features or instructions.


Caution: this notice alert you to system damage, loss of data, or risk of personal injury.


ESD: This banner indicates an Electrostatic Sensitive Device.

All numbers are expressed in decimal, except addresses and memory or register data, which are expressed in hexadecimal. The prefix `0x' shows a hexadecimal number, following the `C' programming language convention.

The multipliers `k', `M' and `G' have their conventional scientific and engineering meanings of $*10^3$, $*10^6$ and $*10^9$ respectively. The only exception to this is in the description of the size of memory areas, when `K', `M' and `G' mean $*2^{10}$, $*2^{20}$ and $*2^{30}$ respectively.

When describing transfer rates, `k' `M' and `G' mean $*10^3$, $*10^6$ and $*10^9$ *not $*2^{10}$ $*2^{20}$ and $*2^{30}$.*

In PowerPC terminology, multiple bit fields are numbered from 0 to n, where 0 is the MSB and n is the LSB. PCI and CompactPCI terminology follows the more familiar convention that bit 0 is the LSB and n is the MSB.

Signal names ending with an asterisk (*) or a hash (#) denote active low signals; all other signals are active high.

Signal names follow the PICMG 2.0 R3.0 CompactPCI Specification and the PCI Local Bus 2.3 Specification.

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


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


Caution, Electric Shock!
Before installing a not hot-swappable Kontron product into a system always ensure that your mains power is switched off. This applies also to the installation of piggybacks. Serious electrical shock hazards can exist during all installation, repair and maintenance operations with this product. Therefore, always unplug the power cable and any other cables which provide external voltages before performing work.

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 board 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 board.

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 device, which 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 device should only be installed in or connected to systems that fulfill all necessary technical and specific environmental requirements. This applies also to the operational temperature range of the specific board version, which must not be exceeded. If batteries are present, their temperature restrictions must be taken into account.

In performing all necessary installation and application operations, please follow only 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 board, please re-pack it as nearly as possible in the manner in which it was delivered.

Special care is necessary when handling or unpacking the product. Please consult the special handling and unpacking instruction.

Table Of Contents

Chapter 1 - Introduction

This document describes the engineering evolution of the referenced products to the up-to-date ones which are detailled in the Kontron hardware documentation.

Functional changes that differ from previous version of the document are identified by a vertical bar in the margin.

You will find in the following pages:

This document applies to all available VX3030 Environment Classes: Standard and Rugged Conduction-Cooled versions.

If a specific information applies only to a specific environment class, it is clearly specified in the information description. For example, the reference VX3030/RC applies only to VX3030 Rugged Conduction-Cooled environment class.

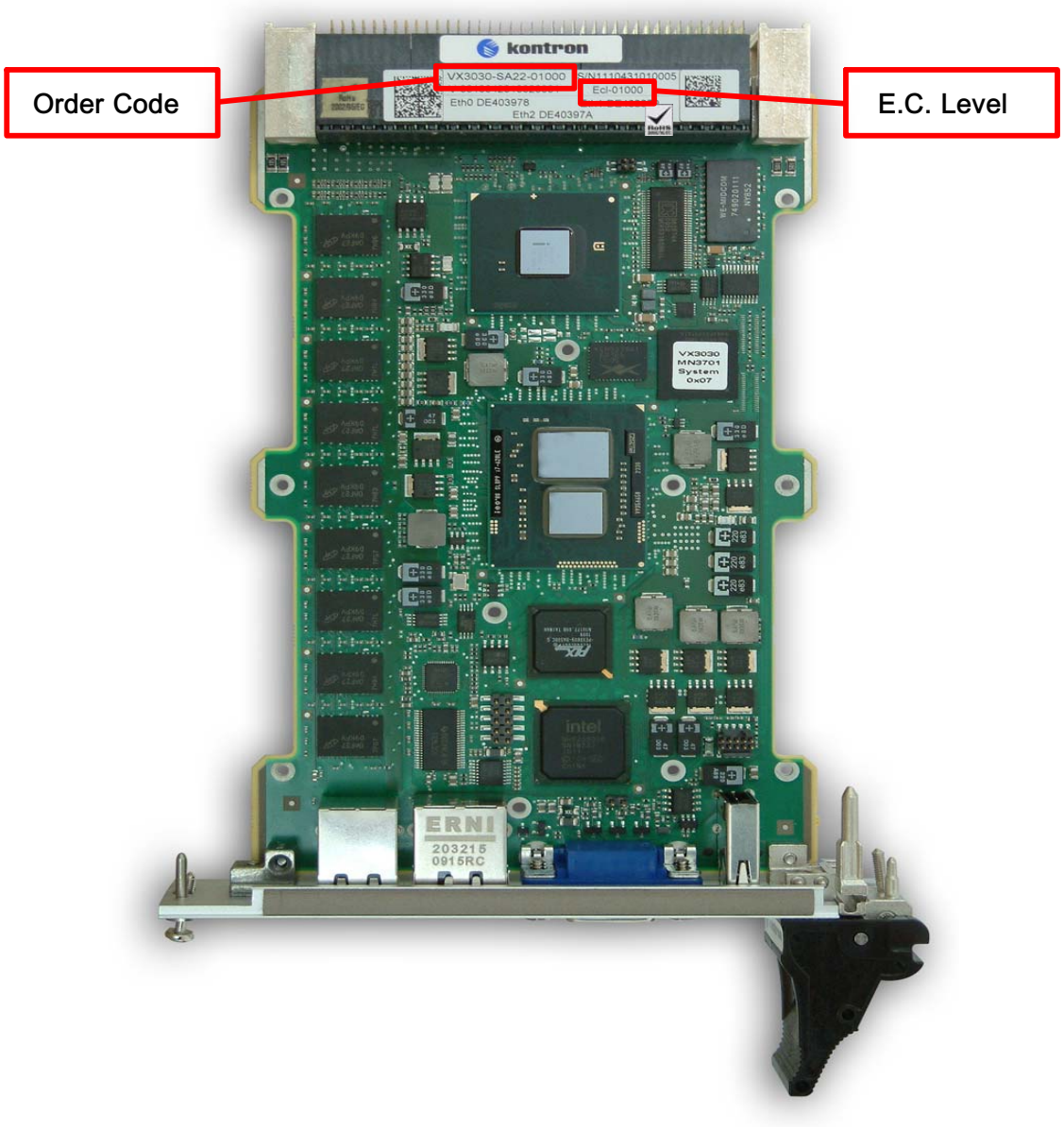
This document refers to the up-to-date release of the following hardware documentation:

> VX3030 User's Guide CA.DT.A87

Chapter 2 - Board Identification

Engineering Change Level and Order Code

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



Chapter 3 - General Information

Personal Injuries

> VX3030/SA

- 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.

EMC Gasket

In order to protect the EMC gasket located in the front panel, be careful during the insertion of the boards in the rack. It is recommended to insert the boards in a rack starting from the higher slot number and extract them starting from the lowest slot number.

Power Supplies

On +3.3V, +5V, +12V power supplies, monotonic rise time no longer than 25 ms is required at Power on.

For a power off condition to be valid, the +3.3V, +5V and +12V power supply inputs should remain at 0V for at least one second.

VX3030/SA Handling

Do not lie the board on the CPUs heatsink to avoid damages on the processor.

Chapter 4 - Board Revision Guide

4.1 How to Use the Board Revision Guide Table

1. Find the E.C. Level associated to your board as described in the Chapter 2 “Board Identification" page 2.
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.

Each item is fully described in section 4.4 “Item Detailed Description" page 6.

4.2 Revision Guide Table - Functional E.C. Levels

Item	CRP	Description	E.C. Levels										
			01000	01001	01002	01003	01004	01005	01014	01015	01016	01116	01x17
1	3903	Adapter for JTAG chain not available	X	X	X								
2	3904	Adapter for XDP interface not available	X	X	X								
3	3899	SATA 3Gb/s with PB-VX3	X	X	X	X	X	X	X	X	X	X	X
4	3918	SPI rescue flash not always protected	X	X	X	X	X	X	X	X	X	X	X
5	3900	eDP limitation with PB-VX3	X	X	X	X	X	X	X	X	X	X	X
6	3901	Alignment key oxidation	X	X	X	X	X	X	X	X	X	X	X
7	3909	NVMRO protection not fully functional	X										
8	3976	Reset deadlock	X	X	X								
9	3977	VPX PCIe switch (PEX8609) not always detected on peripheral slot	X	X	X	X							
10	3859	DP/HDMI device not detected on cold start and 4V85	X	X	X	X	X	X	X	X	X	X	X
11	4040	VPX I2C bus level are not respected	X	X	X	X	X		X				
12	4063	VPX GDISCRETE# signal not functional	X	X	X	X	X	X					
13	4064	Reset kept active 4s~5s after hardware reset	X	X	X	X	X	X					
14	4234	Thermistors not UL1434 compliant	X	X	X	X	X	X	X	X			
15	4235	AUX clock not exactly at 1Hz	X	X	X	X	X	X	X	X	X		
16	4236	VPX SYSRESET management during power-on	X	X	X	X	X	X	X	X	X		
17	4237	I2C multimaster not supported on backplane I2C0	X	X	X	X	X	X	X	X	X		
18	4276	C-State C6 not supported	X	X	X	X	X	X	X	X	X	X	X
19	4275	Led #1 kept on red at power-on	X	X	X	X	X	X	X	X	X	X	

4.3 Revision Guide Table - Mechanical E.C. Levels

Item	CRP	Description	E.C. Levels				
			xxxxxD0	xxxxxD1			
M1	-	Incompatibility with FDM-SATA ECL300x	X				

4.4 Item Detailed Description - Functional E.C. Levels

Each item applies only to a specific group of E.C. Levels.
Refer to the table available in section 4.2 “Revision Guide Table - Functional E.C. Levels” page 5 to find the specific E.C. Levels associated to a specific item.

Item #1 Adapter for JTAG chain not available - CRP 3903

Description: JTAG adapter not available.

Impact: JTAG chain not testable.

Workaround: Fixed in E.C. Level 01003.

Item #2 Adapter for XDP interface not available - CRP 3904

Description: XDP adapter not available.

Impact: XDP interface not accessible.

Workaround: Fixed in E.C. Level 01003.

Item #3 SATA 3Gb/s with PB-VX3 - CRP 3899

Description: Some SATA II 3G/s devices on PB-VX3 are not detected by BIOS.

Impact: SATA II 3Gb/s link not recommended with PB-VX3.

Workaround: Set SATA link to 1.5Gb/s on devices.
Under investigation.

Item #4 SPI rescue flash not always protected - CRP 3918

Description: SPI rescue flash write protection effective if SW1[3] is ON or NVMRO ON.

Impact: SPI rescue not always protected for writes

Workaround: Fixed in future E.C. Level.

Item #5 eDP limitation with PB-VX3 - CRP 3900

Description: The use of PIM module on PB-VX3 to connect graphic monitor on eDP is not optimized in terms of signal integrity.
Black screen (loose of synchronization) may occur on eDP monitor especially if the ambient temperature is high (ie +55°C).

Impact: 1920x1080 eDP resolution not recommended with PIM module.

Workaround: The maximum eDP resolution must be set to 1680x1050 instead of 1920x1080.
Under investigation.

Item #6 Alignment key oxidation - CRP 3901

Description: Oxidation on VPX alignment key may appear after several weeks.

Impact: Bad earth connection.

Workaround: Under investigation.

Item #7 NVMRO protection not fully functional - CRP 3909

Description: NVMRO write protection not fully functional.

Impact: All eeprom devices are not write protected when NVMRO is asserted.

Workaround: Fixed in E.C. Level 01001.

Item #8 Reset deadlock - CRP 3976

Description: VPX reset or front panel button may not be asserted more than 34 seconds.

Impact: The board is kept in reset.

Workaround: Fixed in E.C. Level 01003.

Item #9 VPX PCIe switch (PEX8609) not always detected on peripheral slot - CRP 3977

Description: VPX PCIe switch PCI scan detection may fail after reset.

Impact: VPX transfers not possible.

Workaround: Fixed in E.C. Level 01004.

Item #10 DP/HDMI device not detected on cold start and 4V85 - CRP 3859

Description: DP or HDMI devices may not be found at power-on at 0°C or below and when 5V backplane power is set to 4V85.

Impact: DP or HDMI devices may not be found at power-on on cold start, Vmin on 5V.

Workaround: No plan to fix.

Item #11 VPX I2C Bus Level are not respected - CRP 4040

Description: The VPX I2C chip buffer does not respect the I2C specification for the low level input voltage.

Impact: Bad VPX I2C behavior.

Workaround: Fixed in E.C. Level 01005.

Item #12 VPX GDISCRETE# Signal not functional - CRP 4063

Description: VPX GDISCRETE# signal is not functional

Impact: Do not use VPX GDISCRETE# signal.

Workaround: Fixed in E.C. Levels 01014 and 01015.

Item #13 Reset kept active 4s~5s after Hardware Reset - CRP 4064

Description: The PCH reset sequence is not well timing optimized by CPLD.

Impact: Power-up and reset lengthened of 4s~5s.
Bad USB device detection.

Workaround: Fixed in E.C. Levels 01014 and 01015.

Item #14 Thermistors not UL1434 compliant - CRP 4234

Description: Thermistors used on DC/CD converters are not UL1434 compliant.

Impact: CE marking

Workaround: Fixed in E.C. Level 01016.

Item #15 AUX clock not exactly at 1Hz - CRP 4235

Description: The auxiliary clock available on VPX P0 connector (B8/C8 pins) is set at 0,999938 Hz instead of 1Hz

Impact: Features using this clock as reference must take in account this wrong frequency.

Workaround: Fixed in E.C. Level 01116.

Item #16 VPX SYSRESET management during power-on - CRP 4236

Description: The VPX SYSRESET is activated only 300 ms after the VPX power-on instead of an immediately activation.

Impact: A pulse can be observed and propagated on the VPX SYSRESET during the power-on.

Workaround: Fixed in E.C. Level 01116.

Item #17 I2C multimaster not supported on backplane I2C0 - CRP 4237

Description: The I2C multimaster mode is not supported on the backplane I2C0 bus. Unexpected results can occurs if another I2C master is present.

Impact: Risk of conflict when multiple agents are simultaneously accessing the bus.

Workaround: Fixed in E.C. Level 01116.

Item #18 C-state C6 not supported - CRP 4276

Description: The C-state C6 is a low power mode that causes the processor PSU to reduce the regulation to only one phase.

Impact: The processor PSU may hang, causing a power failure.

Workaround: Do not activate C-state C6 in OS kernel; use C-state C3 instead.

No plan to fix.

Item #19 Led #1 kept on red at power-on - CRP 4275

Description: At power-on, the internal PSU sequencer may enter in a fault state due to the lack of margin on the timeout counter of the processor power supply.

This cause a power failure condition (Led #1 kept on red)

Impact: The board does not start.

Workaround: Fixed in E.C. Level 01x17

4.5 Item Detailed Description - Mechanical E.C. Levels

Each item applies only to a specific group of E.C. Levels.
Refer to the table available in section 4.3 “Revision Guide Table - Mechanical E.C. Levels” page 5 to find the specific E.C. Levels associated to a specific item.

Item #M1 Incompatibility with FDM-SATA ECL300x

Description: The capacitors on the FDM-SATA ECL300x are too high and can be in contact with the VX3030 ruggedizer.

Impact: Shorts can occur on the FDM-SATA.

Workaround: Fixed in E.C. Level xxxxxD1.

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