

VX3058 SA



VX3058 SA EFT Release Note

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1 Document Revision History

Document Revision History

Revision	Date	Edited by	Changes
1.0	27-Jul-2015	M. Ritondale	Initial version

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2 Preface

This document contains information proprietary to Kontron. It may not be copied or transmitted by any means, disclosed to others, or stored in any retrieval system or media without the prior written consent of Kontron or one of its authorized agents.

The information contained in this document is, to the best of our knowledge, entirely correct. However, Kontron cannot accept liability for any inaccuracies or the consequences thereof, or for any liability arising from the use or application of any circuit, product, or example shown in this document. Kontron reserves the right to change, modify, or improve this document or the product described herein, as seen fit by Kontron without further notice.

2.1 Trademarks

This document may include names, company logos and trademarks, which are registered trademarks and, therefore, proprietary to their respective owners.

2.2 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

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2.3 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 *103, *106 and *109 respectively. The only exception to this is in the description of the size of memory areas, when `K', `M' and `G' mean *210, *220 and *230 respectively.



Note: When describing transfer rates, `k' `M' and `G' mean *103, *106 and *109 not *210 *220 and *230.

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.

2.4 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 to the following guidelines.

2.5 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.

2.6 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.

2.7 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.

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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.

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3 EFT and Product name

Featuring the Intel® Xeon® D processor family (formerly Broadwell-DE), the VX3058 is the first 8-core multiprocessing board of the Kontron 3U VPX ecosystem. The highly integrated 8-core 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

VX3058 SA EFT is the preliminary Early Field Test (EFT) sample release of a new Octo Core Intel® Xeon® Processor VPX Server Blade product.

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4 Introduction

This document defines Early Field Test sample (EFT) status and limitations. EFT boards help customer 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:
> VX305xSA User's Guide CA.DT.B25

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5 EFT Board Identification

➤ Engineering Change Level and Order Code

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



6 General Information

6.1 Personal Injuries



Warning:

- Do not touch the CPU's 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.

6.2 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.

6.3 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.

6.4 Battery Replacement



Warning:

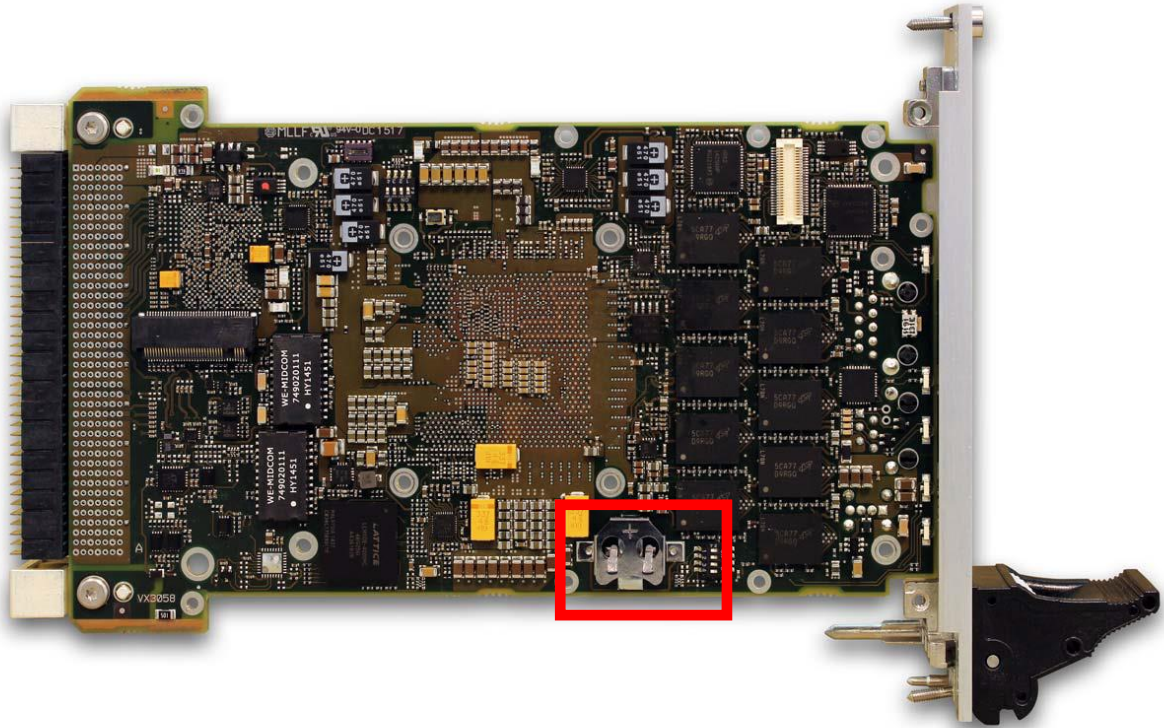
Make sure not to remove the battery support, this could damage the heatsink.

To replace the battery, proceed as follows:

- Turn off the power.
- Get the battery outside of its holder
- Place the new battery in the socket with the plus pole facing upwards.

Care must be taken to ensure that the battery is correctly replaced.

The battery should be replaced only with an identical or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.



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7 EFT limitations

7.1 EFT configuration overview

EFT configuration	
EFT Order Code	VX3058SA881150000 (Air cooled)
EFT Operating conditions	Ambient temperature below 30°C, 3U inlet airflow above 3m/s
EFT Hardware E.C. Level	EC10000A0 No graphics Intel Broadwell-DE V-1 12MB 8c 1.4GHz 35W ES2 processor cPLD Version 0x1
EFT BIOS	ID15196PROTO for KONTRON VX3052 & VX3058 PROTO boards
EFT LinuxOS	Fedora 21 , Linux version 3.18.3-15202.VX305x.fc21.x86_643.18.3-15202.VX305x.fc21.x86_64 (BSP is not yet available)
LinuxOS Boot device	Pre-installed Top M.2 SATA SSD device (standard Fedora 21) M.2 SSD device: Transcend TS32GMTS400 32GB SSD



Warning: Preinstalled M.2 Transcend TS32GMTS400 32GB SATA SSD is delivered on EFT with Fedora 21 distribution. Please note that Transcend TS32GMTS400 32GB SATA SSD use and reliability can't be guaranteed by Kontron. Customer may use an external HDD on VPX P1 SATA port0 or port1 for higher reliability.

7.2 EFT Features and limitations



Important Note about Intel ES2 samples: Intel Engineering Samples (ES2) are not meant for performance benchmarking, they are really design-in samples to be used for functional testing and firmware development.

Feature	Group	Status	Test Conditions
Front reset	Front panel	Available	Basic functional test
Front ETH	Front panel	Available	Basic functional test
Front USB2	Front panel	Available	Basic functional test
Front serial ⁽¹⁾	Front panel	COM1, RS232 only	Basic functional test
Front LED indicators	Front panel	Available	Basic functional test
Front HDMI port	Front panel	Not available, verification in progress	
VPX P0 SMBus0/1 ⁽¹⁾	VPX P0 rear panel	Not available, verification in progress	
VPX P0 user GPIO ⁽¹⁾	VPX P0 rear panel	Not available, verification in progress	
VPX P0 RefCLK ⁽¹⁾	VPX P0 rear panel	Not available, verification in progress	

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VPX P0 RefCLK ⁽¹⁾	VPX P0 rear panel	Not available, verification in progress	
VPX P1 Gdiscrete ⁽¹⁾	VPX P1 rear panel	Not available, verification in progress	
VPX Maskable Reset	VPX P1 rear panel	Not available, verification in progress	
VPX P1 SATA (port0) ⁽¹⁾	VPX P1 rear panel Wafer 9	Available Up to 3Gbps (SATA II)	Basic functional test
VPX P1 SATA (port1) ⁽¹⁾	VPX P1 rear panel Wafer 10	Available Up to 3Gbps (SATA II)	Basic functional test
VPX P1 1000Base-T Ethernet ⁽¹⁾	VPX P1 rear panel Wafer 13/14	Not available, verification in progress	
VPX P1 10G-KR Ethernet ⁽¹⁾	VPX P1 rear panel Wafer 15	Available 10G-KR mode only	Basic functional test
VPX P1 10G-KR Ethernet ⁽¹⁾	VPX P1 rear panel Wafer 16	Available 10G-KR mode only	Basic functional test
VPX P1 x8 PCIe ⁽¹⁾	VPX P1 rear panel Wafer 1~8	Available, x8 Gen2 mode only	Basic functional test With VX3905 Tool
VPX P1 USB3 port ⁽¹⁾	VPX P1 rear panel Wafer 11	Not available, verification in progress	
VPX P1 USB2 port0	VPX P1 rear panel Wafer 12, Row E/F	Available	Basic functional test with PB-VX3-401 Tool
VPX P2 ⁽¹⁾	VPX P2 rear panel Wafer 1~16	Not available, verification in progress	
RTC/Battery	RTC	Available	Basic functional test
TOP M.2 slot	M.2	Available	Basic functional test
Bottom M.2 slot ⁽¹⁾	M.2	Not available, verification in progress	
cPLD Misc features ⁽¹⁾	cPLD	Not available, verification in progress	
SW1 dipSW ⁽¹⁾	dipSW	No change allowed, all positions are OFF	Basic functional test
SW2 dipSW ⁽¹⁾	dipSW	Position 1 can be used if necessary No change allowed for position 2, 3 and 4 (OFF only)	Basic functional test
User FRAM ⁽¹⁾	Memory	Not available, verification in progress	
User eeprom ⁽¹⁾	Memory	Not available, verification in progress	
VPD eeprom	Read only Memory	Available No write allowed	Basic functional test
8GB DDR4-2133 dual bank	Memory	Available	Basic functional test
Broadwell-DE V-1 12MB 8c 1.4GHz 35W ES2	SOC	Available with I/O limitations described in this table.	Basic functional test



Note (1) in table: Features not yet available. Hardware, BIOS and Board Support Package (BSP) are still in development and verification in progress. Some limitations may be cancelled with BIOS and Linux BSP software updates.

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7.3 BIOS Release Note

Version: ID15196PROTO for KONTRON VX3052 & VX3058 PROTO boards

MD5SUM:

```
=====
16feaf80daf1d77f0195d2b64123dbf6 ID15196PROTO.ROM
8488af83bd34893f80cfb78d47cfe1b2 VX305x_ID15196PROTO.bin
```

Recommendations:

- ```
=====
```
- PCH Bios Lock setting option must remain disabled in IntelRCSetup/PCH Configuration/Security Configuration setup menu, needed for kflash command.
  - Switches SW1.1 FACTORY MODE and SW1.2 DEBUG MODE must remain in OFF position to prevent any SPD eeprom damage.
  - PCIe switch eeprom update must remain disabled in Kontron/VPX Configuration setup menu (option VPX EEPROM Config.)

Limitations:

- ```
=====
```
- Workaround for reset issue: write 0x6 instead of 0xE in the CF9 PCH register. Full reset bit not set.
 - Kontron BIOS ID reported in the BIOS banner only.
ID not reported under setup nor in the smbios table type 0 (full date displayed instead).
 - PCIe switch configuration limited to transparent mode, x8, gen3. kvpx command not operational yet.
 - kmac command not implemented. Must use the Intel tools eupdate and lanconf to update ethernet interface eeproms/spiflashes and to configure the MAC addresses.
 - PXE boot is not operational.
 - SMBIOS tables not ported. UUID not implemented.
 - ACPI not fully ported (thermal zones, powerbutton ...). Negative temperatures not supported.
 - AZERTY USB keyboard not supported.
 - BIOS fail safe not supported.
 - cannot limit speed on SATA ports
 - USBSS not operational
 - NO PBIT test available in this release.

7.4 LinuxOS Release Note

Standard Fedora 21 Linux version 3.18.3-15202.VX305x.fc21.x86_64.18.3-15202.VX305x.fc21.x86_64 is installed on M.2 SSD (Transcend TS32GMTS400 32GB SSD) to ease system bring-up and product assessment.

This preinstalled linux distribution does not include VX3058 Board Support Package, still in development.

VX3058 Board Support Package is not yet available and will be released later.

Some EFT limitations may be cancelled with future BSP releases.



Note: How to Log into the system (login and passwd) Root passwd is “kontron”.

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7.5 Boot devices

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



Note : PXE boot is not operational but will soon become available with BIOS updates. Contact support.

7.6 In case of Trouble

Please contact your Kontron support personnel

- How to restore or update the boot device or the BIOS

Contact support.

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