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# ETAS RTPC V6.5.2

Release Notes

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## 1 Introduction

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Thank you for using our products. This document contains important information. It updates the documentation of ETAS RTPC V6.5.2 (see chapter 1.4 where to find the documentation), reflecting known important software and documentation issues. We strongly recommend that you read the entire document.

### 1.1 Definitions and Abbreviations

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Term/Abbreviation	Definition
EHI	ETAS Help Desk International
HW	Hardware
KIR	Known Issue Report – For severe Problem Reports which occur after a release, ETAS has introduced the Known Issue Report to inform affected customer immediately. The current Known Issues of former versions can be found on the ETAS website: <a href="https://www.etas.com/kir">https://www.etas.com/kir</a>
PR	Problem Report
SW	Software

### 1.2 References

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We recommend having also a look in the COSYM and LABCAR-OPERATOR documentation to learn more about how to integrate the simulation target ETAS RTPC to be used for simulation experiments with the code generated for a COSYM/LCO project.

You can also find information about the compatible versions of software tools which can be used with ETAS RTPC V6.5.2 going beyond the list "Supported versions of related software products" shown in chapter 2.2.

### 1.3 Conventions

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The following typographical conventions are used in this document:

Choose <b>File → Open</b> .	Menu commands are shown in boldface.
Click <b>OK</b> .	Buttons are shown in boldface.
Press <ENTER>.	Keyboard commands are shown in angled brackets.
The "Open File" dialog box is displayed.	Names of program windows, dialog boxes, fields, etc. are shown in quotation marks.
Select the file <code>setup.exe</code>	Text in drop-down lists on the screen, program code, as well as path- and file names are shown in the Courier font.
A <i>distribution</i> is always a one-dimensional table of sample points.	General emphasis and new terms are set in italics.

### 1.4 User Documentation

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The ETAS RTPC V6.5.2 user documentation "ETAS RTPC V6.5.2 – User Guide" in PDF format can be found on the product DVD/CDs folder "Documentation".

## 2 Product Definition

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### 2.1 Functions at a glance

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ETAS RTPC – the ETAS Real-Time Simulation target for HiL testing performs real-time simulation of complex models on standard PC hardware. It is the core component of the LABCAR testing system. Installing the ETAS RTPC software turns any suitable PC into a high-performance simulation target, which calculates DVE models with cycle times below 50  $\mu$ s in real-time (depending on hardware performance) on a suitable multi core/ multi processor of-the-shelf PC. Thus, even highly dynamic physical control processes can be simulated. Communications are handled through standard interfaces, with preference given to PCIe or Ethernet.

### 2.2 General Description

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#### 2.2.1 System Prerequisites

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You may find more information about compatible hardware what can be used with ETAS RTPC V6.5.2 in the file "ETAS RTPC V6.5.2 - Hardware Compatibility List.pdf".

Note: Starting with V6.1.0, the ETAS RTPC will not support any Pentium 4 or older as PC hardware for the simulation software.

#### **Supported versions of related software product**

- COSYM V2.5 and corresponding Add-On software products
- LCO V5.4.12 HF1 and corresponding Add-On software products
- ETAS HSP V11.14.1, V11.14.2, V11.15.0, V12.0, V12.1, V12.2, V12.3, V12.4, V12.5
- The MathWorks™<sup>1</sup> 2016a, 2016b, R2017a, R2017b, R2018a, R2018b, R2019a, R2019b, R2020a, R2020b, R2021a
- ASCET V6.2.0 HF1  
ASCET V6.2.1 HF3  
ASCET V6.4.2
- EB tresos Busmirror V4.8.1, V4.9.0, V4.10.2, V4.13.0, V4.14.2, V4.15.0, V4.16.1, V4.16.2, V4.17.1 V4.17.2, V4.17.3, V4.17.4, V4.17.5, V4.18.1, V4.18.2, V4.18.3, V4.19.5, V21.5.0
- Linux Distribution Debian V10.07 ("Buster"), Linux kernel version V4.9.178 +rt131
- Gnu Compiler Chain (gcc) V8.3

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<sup>1</sup> Support of either 32bit or 64bit MATLAB® version.

## 2.3 Delivery

The software is delivered on a bootable DVD including, documentation, tools & utilities, and further information. All software documentation is available in the Portable Document Format (PDF), which requires Adobe® Reader®.

The disk contains the following items:

<b>Directory</b>	<b>Meaning / Explanation</b>
Files in the root directory	System files and version information, a warning not to boot a PC from the disk accidentally
Boot	Linux system files required to boot the PC
Live	Additional system files required to boot the PC
Documentation	ETAS RTPC manual, ETAS RTPC compatibility list, RTPC related documentation of LABCAR system, installation hint how to install the 4 times LAN adapter in the PC
install	ETAS RTPC software related files
src	Sources of the used open source components
tools\ auto-update	Command line tool for updating an RTPC system, see "README.txt" for how to use it
tools\ perl-scripts	Contains example Perl scripts to perform a) file upload from PC where LCO is installed to PC where RTPC software is installed, b) stream CAN communication to a console window instead using the LCO instrument for CAN trace
tools\ putty	Contains a telnet client to remote login to RTPC PC
tools\ rtplugin	Contains example files for demonstration of the feature "Plug-in for Real-time Test" introduced in version V4.1. See the files "HEADER.html" in the subdirectories for a short description and the RTPC manual for how to use this feature.

## 2.4 Installation

For installation, please refer to the chapter "Installation" in the RTPC manual. Please consider that starting with LABCAR-RTPC V5.1.2 the product media have been switched from CD to DVD.

## 2.5 Licensing

Starting with V6.0.3 the ETAS RTPC will be integrated into the ETAS Electronic Licensing. You need a valid license to execute a LABCAR-OPERATOR/COSYM project on ETAS RTPC. For more information please refer to chapter 2.4.3 "Licensing" in the ETAS RTPC User Guide. If no valid license is provided you will get a warning message in log view after START EXPERIMENT: "No valid RTPC license for LABCAR found. Limited runtime (1800 seconds)". After 30 min of RTPC operation the simulation will stop automatically. It is not possible to start the simulation again without reboot of RTPC.

### 3 Changes

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This chapter describes changes with respect to the previous version of ETAS RTPC V6.5.2.

#### 3.1 What's New

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- Support of LCO V5.4.13 (see LCO documentation for more information)
- Support for EB V21.10.2 driver

#### 3.2 Compatibility to Earlier Releases

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Project executables generated with previous RTPC versions are not intended to be executable with this RTPC version. The project needs to be rebuilt.

Starting with V6.1.0 the ETAS RTPC will not support any Pentium 4 or older as PC hardware for the simulation software.

**It is not recommended to install versions older than V6.4.0 of ETAS RTPC in parallel to ETAS RTPC V6.4.0 or above on EFI hardware.**

#### 3.3 Known Issue Reports

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If a product issue develops, ETAS will prepare a Known Issue Report (KIR) and post it on the internet. The report includes information regarding the technical impact and status of the solution. Therefore you must check the KIR applicable to this ETAS product version and follow the relevant instructions prior to operation of the product.

The Known Issue Report (KIR) can be found here:

<https://www.etas.com/kir>

#### 3.4 Known Issues

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This section describes the set of known problems of the released version of ETAS RTPC V6.5.2.

##### 3.4.1 Software related Items

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###### *Size of Hard Disk Partitions*

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ETAS RTPC installs several partitions on the PCs hard drive. Since ETAS RTPC V2.0.8 the size of these partitions has changed from 4GB to 7GB. However, this size increase is only realized when ETAS RTPC is completely re-installed directly from the Product DVD. If ETAS RTPC has been updated via the function "Install SW Image" of the RTPC web interface since V2.0.7 or older, the partition sizes may be too small for compiling large models.

###### *Visibility of Hard Disk Partitions*

---

ETAS RTPC enables up to 4 partitions on the PC's hard drive. Nevertheless if you have installed different versions of RTPC software on the partitions and you switch to a partition with version < V5.0.0 only 2 partitions which can be managed by that previous RTPC versions are accessible for reboot. To avoid this deadlock you should have a version >= V5.0.0 installed in partition 1 and/or partition 2. To fix the problem you need to adapt/enter the following lines in the Expert Edit of RTPCs Web Interface Configuration page >> System Boot Settings >> Expert Edit:

```
----- BEGIN (start with next line) -----
```

```
# Created Wed Mar 11 11:02:16 2009
timeout 3
splashimage /boot/grub/bootlogo.xpm.gz
default 1

# -----
title sda5: unknown

root (hd0,4)
kernel /boot/vmlinuz root=/dev/sda5 vga=ext quiet isolcpus=1-7
initrd /boot/initrd.gz

# -----
title sda6: unknown

root (hd0,5)
kernel /boot/vmlinuz root=/dev/sda6 vga=ext quiet isolcpus=1-7
initrd /boot/initrd.gz

# -----
title sda7: unknown
root (hd0,6)
kernel /boot/vmlinuz root=/dev/sda7 vga=ext quiet

# -----
title sda8: unknown
root (hd0,7)
kernel /boot/vmlinuz root=/dev/sda8 vga=ext quiet
----- END (stop with previous line) -----
```

#### *Matrox G550 Graphics Card assembly RTPC with Fujitsu D3348-B2 Mainboard*

There is a known issue that if a Matrix G550 Graphics Card is installed in RTPC with Fujitsu D3348-2 Mainboard the RTPC hangs at shutdown. To avoid this issue the card has to be installed in one of the PCIe-Slots 7,6,4 or 3 of the mainboard.

#### *Limitations in RTPC logger blocks the simulation controller*

The logging mechanism of RTPC allows 60000 messages in 5 seconds. If this limit is exceeded by a project the simulation controller can be blocked and the RTPC has to be rebooted. It is recommended to set the environment variable RTPC\_LOG\_LEVEL to warning or error.



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*Hardware log displays "send message failed: Connection refused"*

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This message is displayed when the logger is somehow closed before the simulation-model because of the termination time of the simulation model. It does not affect any functionality as such. This message can be ignored.

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*Configuration of NTP server (COSYM-43510)*

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To use a NTP server the environment variable RTPC\_NTP\_SERVER\_ADDR has to be set to the address of the NTP server which is accessible from the RTPC (in most cases the host pc). Please use the expert edit of the RTPC web frontend to set this environment variable.

---

*Smart Download fails after RTPC Reboot (EHI calls 626413)*

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In some cases when we have larger model/projects download fails after reboot of RTPC. To solve this issue, Smart Download is disabled after reboot of RTPC.

### 3.4.2 Hardware related Items

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*The RTPC logger detects a CRITICAL situation with boards of HW-family 0x120, 'CAN-IB640/PCIe' (EHI 656434)*

---

Please power down the RTPC and wait some seconds. Then please turn it on again. Boards of type IB200 or IB600 are not affected.

---

*ES5300.1-A – 3 beeps during boot process*

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The ES5300.1-A will emit 3 gentle short beeps during its boot process. This indicates that no graphic adapter was found which is the normal delivery status.

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*Network Interface Address Assignment*

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ETAS RTPC assigns each Ethernet network interface a logical device address ETHx according to a certain algorithm. In ETAS RTPC V3.0.0 a different algorithm had been used. If you should experience any problems with network interface assignments to the LCO host or to the connected VME hardware please try to change the hardware connections by swapping the Ethernet plugs going into the different Ethernet boards or nodes. Please contact the LABCAR hotline for assistance and more detailed information.

---

*Ethernet connection to ES1130*

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Pressing the "Detect ES1130" or the "Autoconfigure" buttons in the Web Interface of ETAS RTPC opens a telnet session with the ES1130. If these buttons are pressed in rapid succession, the maximum number of possible telnet sessions of the ES1130 is reached and communication errors are produced. They can be ignored and the ES1130 should be reset in order to resume working properly.

---

*Update from ETAS RTPC V2.0.x*

---

For updating an existing ETAS RTPC V2.0.x installation, it is recommended to install directly from the RTPC Product DVD (see ETAS RTPC User Guide, Section 2.3).

Using the function "Install SW Image" of the RTPC web interface for updating an RTPC V2.0.x to versions V3.0.x or V4.0.x may cause the RTPC to not boot again. This is due to the fact that during the update the hard disk driver of the new kernel may wrongly recognize some IDE hard disks as SATA hard disks.

If you nevertheless want to use the "Install SW Image" function, you should upgrade to version V3.0.x before upgrading to any version equal or higher than V3.0.x. Prior to this, patches for the previous RTPC versions V2.0.8 and V2.0.9 (e.g. update-V2.0.8-migration-to-3.0.0.tgz) have to be applied which can be found in the "\updates" directory on the RTPC V3.0.1 Product CD. These patches have to be installed using the function "Apply SW update" of the RTPC web interface prior to installing ETAS RTPC V3.0.1 via the "Install SW Image" function.

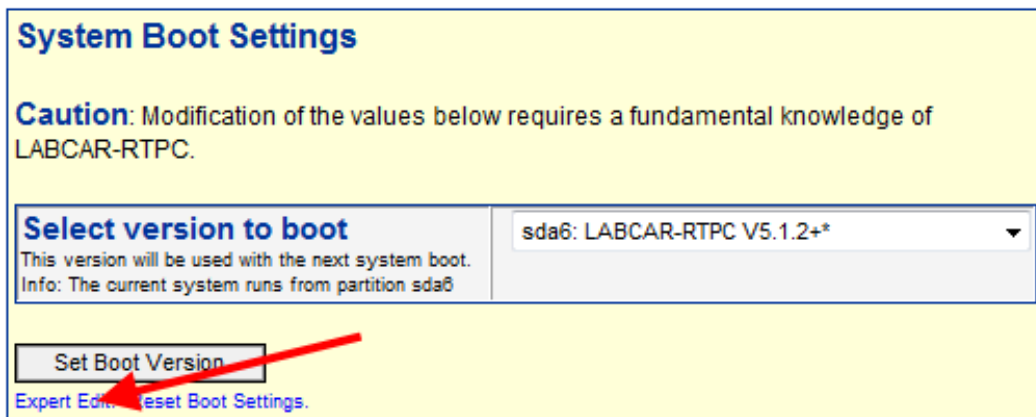
Certain types of PCIe Expansion boxes are not detected by the system (EHI call #356442)

With certain PCIe expansion boxes it has been observed they are not detected by the BIOS during boot phase and therefore later not taken into consideration by the LINUX OS. The reason for this is that the Linux kernel assumes as default, that all PCI devices have been properly configured by the BIOS. However this is not always the case as the BIOS does not consider PCIe expansion boxes with a large number of slots due to time out situation.

You can improve the situation e.g. by changing the boot order by inserting the PCIe expansion box adaptor in another slot.

Another way to work around is to apply the following boot setting in the RTPC Web Interface:

Page "Main Page">>"Configuration", section "System Boot Settings" link "Expert Edit")



Change the kernel option for "pci=assign-busses" or "pci=nobios,assign-busses". This way the Linux kernel is forced to do a reconfiguration of the PCI bridges itself and not to rely on the BIOS to have this done properly.

Reboot after Firmware Update EB5200 with HSP

After update of EB5200 FPGA image with HSP the RTPC needs to be rebooted. Normally this is performed as part of the firmware update process by HSP. Nevertheless in certain cases the restart may be inhibited and need to be performed manually to complete the update process of EB5200.

*HSP update need to be performed twice when using ES53XX and 3<sup>rd</sup> party boards together in one RTPC (follow up for EHI call 372063)*

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If one or more IXXAT- (XC16, IB200) or Elektrobit (EB5X00) boards are inserted in a RTPC PC (group 1) together with one or more ES53XX boards (group 2) with the on-board version of at least one board in each group different to the version in the LABCAR Service Pack selected for update with HSP the update procedure need to be performed twice:

1. Start the update/down date procedure first  
=> Group 1 will be processed but group 2 will not  
=> You will receive an error message stating the boards of group 2 are not up to date.
2. Start the update/down date procedure again
3. All boards up to date.

*HSP Update to V4.16 fails for EB5200 (EHI call 624078)*

---

To update the EB5200 boards to V4.16 please activate V4.15.0 on the RTPC before performing the update with HSP.

*Electrobit Card EB5200 is not detected in RTPC web interface as well as in board info, when the TAL version 4.16 is selected (EHI call 622120)*

---

In some cases, the EB5200 board is not detected in RTPC after changing to TAL Version 4.16. After manual stop and start of the simulation controller, the EB5200 will be displayed.

*No valid license is displayed although a valid license file is installed*

---

If the system time of the RTPC is set too far to the past no valid license is displayed. Please use the web front end of the RTPC to synchronize the RTPC system time with the host clock.

*RTPC V6.5.0 does not support Dolphin D3xy boards in the engineering extensions*

---

Due to the update to Linux kernel Version 4 the Dolphin SCI driver cannot be built any longer. Therefore, the D3xy boards will not be supported any longer. There will be no update-6.5.0-DOLPHIN4\_hwext package. The PXH810 is supported with the update-6.5.0-DOLPHIN\_hwext package.

## 4 Hints

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### *Compilation of huge models*

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For this a couple of changes have been done:

1. Real parallel execution of the GNU make for building the simulation model in "codegen".  
Depending on the number of CPU cores and the amount of RAM in the RTPC, the compilation process is done in parallel.  
To get the maximum gain it is highly recommended to equip the RTPC with 8 GB, even better with 16 GB RAM or more!
2. Within the generated code, some files are really huge. For example the file "connect.c" is often larger than 10 MB.  
When compiling large files with the default compiler optimization level (-O2) the amount of RAM that is required for compilation exceeds easily 2-3 GB.  
To speed up the compilation of huge file, the optimization level will be reduced automatically to "-O0" for large source files.  
The threshold size that is used to reduce the optimization level is defined by the RTPC configuration variable "RTPC\_COMPILE\_SIZE\_REDUCE\_OPTIMIZATION".  
To disable this feature set the configuration variable to "0". Default is "4000000".

### *Wake on LAN Support*

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Starting with version V4.0.0 ETAS RTPC provides the information needed to remotely power on the simulation controller (Wake on LAN) via its web interface. Please enable the corresponding BIOS option of your PC and refer for further steps to the ETAS RTPC web page "Power Control".

### *Change of Target Access Library tool version for EB tresos Busmirror used by LCO-NIF for communication between FlexRay residual bus simulation and RTPC simulation*

---

Starting with LABCAR-OPERATOR / ETAS RTPC version V5.1.2 the switch between different TAL versions supported by ETAS RTPC / LABCAR-OPERATOR according to the version EB tresos Busmirror you have used for generating the FlexRay residual bus simulation application is performed on build time automatically. In case the version cannot be received or you want to switch to a version not supported by LABCAR-OPERATOR AddOn Network Integration FlexRay you may want to check or change the setting manually. Place the following link in the Web Browser used as RTPC Web Interface and apply the setting according your selection:

<http://192.168.40.14/cgi-bin/eb-tal-select?format=html>

### *Hardware Extension Package – UART support*

---

The UART support via hardware extension package allows now up to 16 RS232/RS485 ports. If you extend the RS232/RS485 port number to 16, a change of the port order is possible. If you use these ports, verify the hardware configuration and change it accordingly.

### *License update for EB5100 Hardware via EB LINUX command line tool "LicenseUpdate"*

---

For running a Flexray residual bus simulation generated with a specific version of EB Tresos Busmirror a license called "EB tresosBusmirrorRuntime" need to be placed on the EB5100

board. An initial license file is placed on delivery of EB5100 granting access to all EB Tresos Busmirror versions released within the subscription period indicated in the license file.

If you want to upgrade to a newer version of EB Tresos Busmirror the license file might need a replacement. Please contact your local Elektrobit support for information how to obtain this license file.

For license file transfer please perform the following steps:

1. Create telnet session to RTPC 192.168.40.14 login:labcar (no password):

```
> WINDOWS-START-RUN-CMD
> telnet
> open 192.168.40.14
```
2. Optional: Execute TCS tool to determine serial number(s) of all EB5100(s) in your RTPC. The example PC contains one EB5100 board with serial number #249:

```
> //opt/elektrobit/tools/TCS --device-search
< INFO: =====
      INFO: Searching for known PCI devices...
      INFO:      Index 0: EB 5100 with Serial Number 249
```
3. Create an FTP session to RTPC 192.168.40.14 login:labcar (no password)  
WINDOWS-START-RUN-CMD

```
> ftp
> open 192.168.40.14
```
4. Transfer license file e.g. "EB\_LICENSE\_HW\_S00D7DX7.lic"

```
> put EB_LICENSE_HW_S00D7DX7.lic
```
5. Execute the tool "LicenseUpdate" to manage the license(s) on your EB5100(s):
6. Optional: Check for subscription period and current release history:

```
> //opt/elektrobit/tools/LicenseUpdate --show --pci [serial
number]
<Target ready
  Available licenses:
  EB_tresos_Busmirror_FlexRay (05/2011), 2009.a:OK,
  2009.a.sr1:OK, 2010.a:OK, 3.3:OK
```
7. Transfer license file to EB5100

```
> //opt/elektrobit/tools/LicenseUpdate --pci [serial number]
[license file name].lic
< Target ready
```

**Remark: Currently for EB5200 hardware the serial number is not supported for license management, therefore the PCI board ID is used instead of the serial number.**

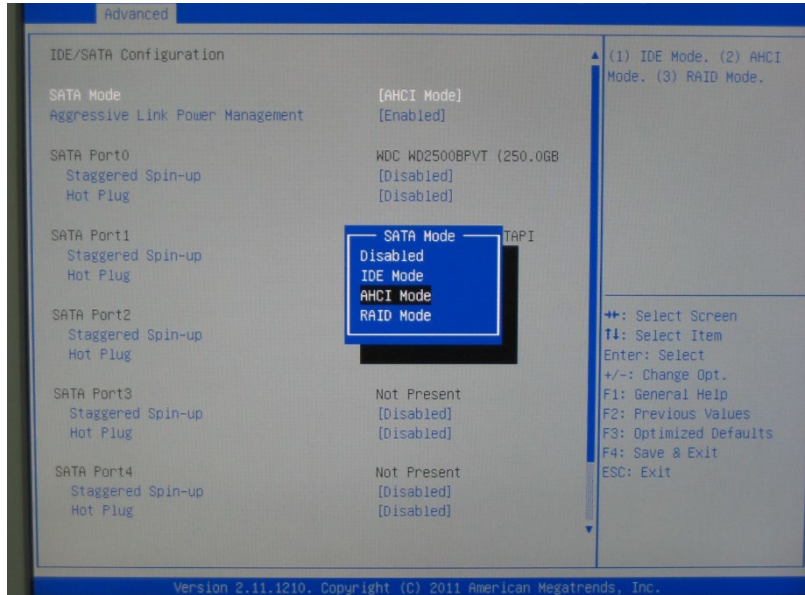
*RTPC Loopback adaptor for CAN must be disabled to enable LIN*

---

Due to the fact that CAN and LIN for the IXXAT boards share the same driver interface the option RTOS\_IXXAT\_CAN\_LOOPBACK for CAN also acts on the LIN driver interface. Therefore the loopback adaptor must be disabled to enable LIN communication.

*RTPC software installation fails with certain ROM drives*

During installation error messages of the kind "Disk not found" may be issued on change of the current drive in case the SATA mode is not set properly. Please make sure the SATA mode for the disk boot drive is set to AHCI mode:



## **5** **Contact, Support and Problem Reporting**

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For details of your local sales office as well as your local technical support team and product hotlines, take a look at the ETAS website:

ETAS subsidiaries	WWW:	<a href="http://www.etas.com/en/contact.php">www.etas.com/en/contact.php</a>
ETAS technical support	WWW:	<a href="http://www.etas.com/en/hotlines.php">www.etas.com/en/hotlines.php</a>