Teledyne DALSA 画像取込ボード

ボード認識不具合時の対処方法 X64 iPRO 関連

2012/09/28 ボードトラブルシューティング

ボードトラブルシューティング

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序)

本書は、DALSA 画像取得ボードが PC のデバイスマネージャー上に認識されない、または、 Firmware Update 等で正常にUpdate されない場合の対処方法と確認方法について 記載したものです。

不具合現象

①PCの電源を起動時、突然ブルースクリーンになりPCが停止した。 ②PCヘボードを実装後、Firmware Update を行ったが、正常にFirmware Update されなかった。 ③画像データ取得時に、突然 PC が停止後、デバイス認識されなかった。

上記の不具合は最もよく発生するボード不具合の内容です。 上記の様な不具合が発生した場合、下記の処置を実行する事により、不具合が解決される場合が あります。もし、下記の処置を実行しても不具合が解決されない場合、不具合を解決するために、 各種のLogの採取をお願いします。

メーカーへ情報を送付して問題を解決できるかどうかを検討し対応します。

不具合発生時の確認

①最新の SaperaLT バージョンと最新 Device-Driver のバージョンを使用して、 正常に Firm ware Update されるかどうかを確認する。

②下記に示す方法を実行後、正常にデバイスが認識されるかどうかを確認する。

③他の PC で当該ボードを実装後、正常に Firmware の認識探されるかどうかを確認する。

不具合原因の解析方法) ①不具合の状況を確認するために、DALSA→SaparaLT→Tools→Log Viewer の 情報を採取する。

②画像取得をイベント発生後、データ取得する場合、
 DALSA→SaperaLT→Tools→Sapera Monitor を実行し、どのイベントが発生後、
 画像データの取得がされないかを確認する。

③Firmware Updater の Log 情報を取得する。 DALSA→X64·CL iPRO Device Driver→Firmware Updateで、Logを取得する。

④PCI Diagnostic の PciDiag.txt を取得する。

⑤PCI Diagnostic の PciDump.txt を取得する。

PCI Diagnostic とは、 PCI Diagnostic は PCI デバイスと I/O 間の衝突とメモリ検出と PCI 構成空間の内容を 読みます。それは新しい PCI デバイスをインストールした後、または前にシステムの統合を 確かめるために使用します。 詳細は、PCIDIAG Application Help を参照願います。 J11 のスタートモード

Firmware Update 中にエラーが発生した場合、J11のジャンパーを外してください。 J11ジャンパーを外した後、Firmware Update を実行します。 Firmware Update が正常に終了したら、再度J11のジャンパーを元に戻します。 J11の場所は本書最後のページを参照願います。

J11: Start Mode

- Default Mode: Shunt jumper is installed.
- Safe Mode: Shunt jumper is removed if any problems occurred while updating the X64-CL iPro . firmware. With the jumper off, reboot the computer and update the firmware again. When the update is complete, install the jumper and reboot the computer once again. (See "Recovering from a Firmware Update Error" on page 21).

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Firmware Update 及びデバイス認識不具合に関する原因と対策について)
次項に不具合発生時の原因と対策方法について記載されておりますので、
ご参照願います。
```

Connector and Switch Locations

X64-CL iPro Board Series Layout Drawings



Troubleshooting Installation Problems

The X64-CL iPro (and the X64 family of products) has been tested by DALSA in a wide variety of 64-bit and 32-bit PCI computers. Although unlikely, installation problems may occur due to the constant changing nature of computer equipment and operating systems. This section describes what the user can verify to determine the problem or the checks to make before contacting DALSA Technical Support. Note that information provided within this section will be updated with the latest information DALSA can provide for each manual version released.

If you require help and need to contact DALSA Technical Support, make detailed notes on your installation and/or test results for our technical support to review. See "Technical Support" on page 126 for contact information.

Recovering from a Firmware Update Error

This procedure is required if any failure occurred while updating the X64-CL iPro firmware on installation or during a manual firmware upgrade. On the rare occasion the board has corrupted firmware, any Sapera application such as CamExpert or the grab demo program will not find an installed board to control.

Possible reasons for firmware loading errors or corruption are:

- Computer system mains power failure or deep brown-out.
- PCI bus or checksum errors.
- · PCI bus timeout conditions due to other devices.
- User forcing a partial firmware upload using an invalid firmware source file.

When the X64-CL iPro firmware is corrupted, executing a manual firmware upload will not work because the firmware loader can not communicate with the board. In an extreme case, corrupted firmware may even prevent Windows from booting.

Solution: The user manually forces the board to initialize from write protected firmware designed only to allow driver firmware uploads. When the firmware upload is complete, the board is then rebooted to initialize in its normal operational mode.

- This procedure requires removing the X64-CL iPro board several times from the computer.
- Important: Referring to the board's user manual (in the connectors and jumpers reference section), identify the configuration jumper location. The Boot Recovery Mode jumper for the X64-CL iPro is J11 (see "J11: Start Mode" on page 103).
- Shut down Windows and power OFF the computer.
- Move the configuration switch for boot recovery (safe mode) from its default position to the boot recovery mode position.
- · Power on the computer. Windows will boot normally.
- When Windows has started, do a manual firmware update procedure to update the firmware again (see "Executing the Firmware Loader from the Start Menu" on page 13).

Firmware-Update のブートリカバリ手順について

 ①PCをシャットダウンします。
 ②ブートリカバリするためにスイッチ構成をデフォルトポジションからブート・リカバリ・モード・ポジションへ 移動します。
 ③ボードを装着します。
 ④PCを起動します。
 ⑤Firmware Update を実行します。
 ⑥Firmware Update が正常に完了したら、再度PCをシャットダウンします。
 ⑦ブートリカバリスイッチを元に戻します。
 ⑧PCを起動後、Saperaを起動し正常に画像データが表示されるかどうかを確認します。

- When the update is complete, shut down Windows and power off the computer.
- Set the Boot Recovery Mode switch back to its default position and reboot the computer once again.
- Verify that the frame grabber is functioning by running a Sapera application such as CamExpert. The Sapera application will now be able to communicate with the X64-CL iPro board.

Windows Event Viewer

Windows Event Viewer (**Computer Management • System Tools • Event Viewer**), lists various events that have taken place during the Operating System boot sequence. If a driver generates an error, it will normally log an entry in the event list.

Device Manager Program

The Device Manager program provides a convenient method of collecting information about the installed X64-CL iPro. System information such as operating system, computer CPU, system memory, PCI configuration space, plus X64-CL iPro firmware information can be displayed or written to a text file (default file name – BoardInfo.txt). Note that this is a second function mode of the same program used to manually upload firmware to the X64-CL iPro.

Execute the program via the Windows Start Menu shortcut **Start • Programs • DALSA • X64-CL iPro Device Driver • Device Manager**. If the Device Manager program does not run, it will exit with a message that the board was not found. Since the X64-CL iPro board must have been in the system to install the board driver, possible reasons for an error are:

- Board was removed
- Board driver did not start or was terminated
- PCI conflict after some other device was installed

Device Manager プログラムの確認)

スタートプログラム→DALSA→X64-CL iPro Device Driver→Device Manager を起動します。 もし、Device Manager が「board was not found」等のメッセージで起動しない場合、 システムでボードドライバをインストールする必要が在るためのエラーは以下の理由の可能性があります。

- ボードが取り除かれていた。
- ・ボードドライバがスタートしていなかったまたは、終了していなかった。
- ・他のデバイスをインストールした後、PCIが衝突した。

不具合の原因を解析するために)

Windows のイベントビューワーを使用します。 アプリケーションのイベントビューワーでエラー内容を確認します。 Logファイルを保存し、送付願います。



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Device Manager - Board Information

The following screen image shows the Device Manager program with Device Info tab active. The left pane displays all Sapera boards in the system. In this example there is only one X64-CL iPro. The right pane displays the information stored in the selected board device, which in this case is the information contained in the EEProm memory component.

A device manager report file (BoardInfo.txt) is generated by clicking File • Save Device Info. This report file may be requested by DALSA Technical Support to aid in troubleshooting installation or operational problems.

| le Delo | | | |
|-----------------------------|----------------------|----------|---|
| Jevice Into Manager | | | |
| Program Reliash Resst | | | |
| Device | Information | | |
| =X84-0iPio_1 | Field | Value | |
| [rigination] | lesue | 8 | |
| - In FU-51 Interlace | Revision | 5 Ti | |
| - PD-32 Interface | Vendor IB | (Ritel) | |
| ADJ/DTE Firmware | Last ECO | 1055 | |
| | СМІ | 0.0000 | - |
| | Extension | 0 | |
| | Serial Number | C2444001 | |
| | Component Version | 0 | |
| | Optional ECO | 089 | |
| | Sub-Template Version | 2 | |
| | Board Model | CL IPYS | |
| | Fusion Road | 0. | |
| Device Info Firmware Lipdam | | | |
| Jurea | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Information Window

```
    ①X64-CL iPro ファームウェアで格納された情報と識別を表示するため

"Information"を選択します。
    ②DALSA Device Manager で"File"→ "Save Device Infor"をテキストファイルへ全ての情報を

保存するためにクリックします。そして、テクニカルサポートよりリクエストが有った時、このファイルを

email で送付ます。
```

PCI Configuration

One of the first items to check when there is a problem with any PCI board is to examine the system PCI configuration and ensure that there are no conflicts with other PCI or system devices. The *DALSA PCI Diagnostic* program allows examination of the PCI configuration registers and can save this information to a text file. Run the program via the Windows Start Menu shortcut **Start • Programs • DALSA • Sapera LT • Tools • PCI Diagnostics**.

As shown in the following screen image, use the first drop menu to select the PCI device to examine. Select the device "X64-CL iPro from DALSA". Note the bus and slot number of the installed board (this will be unique for each system unless systems are setup identically). Click on the **Diagnostic** button to view an analysis of the system PCI configuration space.

| PCI devic | | | | | | | | | | |
|--|--|--|-------------------------------------|---|--------------------------------|-----------------------------|--|---|---|---|
| ×64-CL i | X54-CL iPro from DALSA (bus 4, slot 0, function 0) | | | | | | Device ena | bled | | |
| Vendor I Device I SubVendI SubsetI Comma |) 0x11EC) 0x2069) 0x0001) 0x3233 nd | Rev. ID IntLine IntPn Line size | 0x00 0x10 0x01 0x01 | Latency Min Grant Max Lat. Class Code | 0xFF 0xFF 0xFF 0x0590 | 100 | Hex dump C 8-bit C 16-bit C 32-bit Edit | addr 0x00> 0x04> 0x08> 0x06> 0x0C> 0x0C> | 0 Dx206911E0 Dx02000106 Dx05800000 Dx05800000 Tx0540000FF00 Tx05400000 Tx0540000 | type |
| Status 0x0200 | PE SE | | | VGA N | | pC BN | 1 Mem _ user _GG MH | 10 1z | 0x00 BIST 0x00 | BIST capable |
| Status Ox0200 Base a 0 0x0 | PE SE | | IA SA | YGA N | DPE | pC BN | user <u>66 M</u> | lo Hz | BIST DxCO | BIST capable |
| Status Ox0200 Base a 0 OxD | | E MA 1 s DF7FFFFF | IA SA | YGA N med m Pre : | 1W S | PC BN | 4 Mem | 10 Hz | 0x00 BIST 0x00 | BIST capable |
| Солос Status [Ох0200 Вазе а 0 Ох0 Пара 1 2 | <u>PE</u> <u>SE</u> Idress registers | E MA 1 s DF7FFFFF | IA SA Mer 1/0 | YGA N m Pre 3 0 Pre 3 | 1 DPE | B2B | 4 Mem user GGM Expansion PCI-PCI t Primate | io Iz n ROM - ridge y Bus [. | 0x00 BIST 0x00 | Multi-func |
| Status 0x0200 Base a 0 1 2 3 | PE SE | E MA 1 s DF7FFFFF | IA SA Mer 1/2 1/2 | YGA N m Pre 3 0 Pre 3 0 Pre 3 0 Pre 3 | DPE . | pC BN B2B | 4 Mem user 66 Mi Expansion PCI-PCI b Primage Second | IO Hz n ROM - v Bus L Bus | | Multi-func. BIST capable Enable Diagnost Save |
| Journe Status Journe Base a D D D D J 3 4 | PE SE | E MA 1 s DF7FFFFF | TA SA TA SA Mer 1/0 1/0 | VGA N m Pre 3) Pre 3) Pre 1) Pre 1) Pre 1) Pre 1 | DPE | pC BN B2B | 4 Mem user <u>66 Mi</u> Expansion PCI-PCI t Primay Second Subord | IO Hz I ROM V But L But L But L But I But I But I But I But I But I But I I I I I I I I I I I I I I I | BIST 0x00 | Multi-func. BIST capable Enable Diagnost Save Help |

Clicking on the **Diagnostic** button opens a new window with the diagnostic report. From the PCI Bus Number drop menu select the bus number that the X64-CL iPro is installed in. In this example the computer PCI expansion slots are identified as bus 4.

The window now shows the I/O and memory ranges used by each device on the selected PCI bus. The information display box will detail any PCI conflicts. If there is a problem, click on the **Save** button. A file named '**pcidiag.txt**' is created with a full dump of the PCI configuration registers. Email this file when requested by the DALSA Technical Support group along with a full description of your computer.

PCI バス衝突の確認)

任意の PCI ボードに問題がある場合に最初に確認する項目の1つは、システムの PCI を調べることです。コンフィ ギュレーションと他の PCI またはシステムのデバイスとの競合がないことを確認してます。 PCI 診断プログラム (cpcidiag.exe)は、PCI コンフィギュレーションのレジスタ検査が可能で、これをテキストファイルの情報として 保存することができます。

| Diagnostic | | | |
|--|--|-------------------|-----|
| PC bis Number State Range I/3: be0000000-0-00000000 Mem B/0F40000-0-0-FAFFFF Pier: be0000000-b-0000000 | 1-00 tenge Menozy tenge DF-60000-DF7FFFF | F DALSA (4. 0. 0) | |
| Information No conflict in PCI configuration for bue 4 | | | |
| C Daplay warrings | | | 0K. |

Sapera and Hardware Windows Drivers

The next step is to make certain the appropriate DALSA drivers have started successfully during the boot sequence. Example, click on the Start • Programs • Accessories • System Tools • System Information • Software Environment. Click on System Drivers (Windows XP). Make certain the following drivers have started for the X64-CL iPro.

| Device | Description | Туре | Started |
|------------|----------------------------|---------------|---------|
| CorX64iPro | X64-CL iPro driver | Kernel Driver | Yes |
| CorLog | Sapera Log viewer | Kernel Driver | Yes |
| CorMem | Sapera Memory manager | Kernel Driver | Yes |
| CorPci | Sapera PCI configuration | Kernel Driver | Yes |
| CorSerial | Sapera Serial Port manager | Kernel Driver | Yes |

The Drivers dialog box should be similar to the following screenshot. All other drivers may differ on individual systems.

| Tree | Name | Description | Туре | Started | Start Mode | |
|----------------------------|--------------|--------------------------|---------------|---------|------------|--|
| System Information |] corlog | CarLag | Kernel Driver | True | Boot | |
| System Summary | cormem | CarMem | Kernel Driver | True | Boot | |
| 🗉 🦲 Hardware Resources 🛛 🗕 | corpci | CarPci | Kernel Driver | True | Boot | |
| 🗉 🦲 Companents | corserial | CorSerial | Kernel Driver | True | System | |
| 🗄 🛄 Software Environment 👘 | corusb | Coreco General Purpose U | Kernel Driver | False | Manual | |
| - Drwers | 1 corx64ipro | CarX64iPro | Kernel Driver | True | Manual | |

Log Viewer

The third step in the verification process is to save in a text file the information collected by the Log Viewer program. Run the program via the Windows Start Menu shortcut Start • Programs • DALSA • Sapera LT • Tools • Log Viewer.

The Log Viewer lists information about the installed DALSA drivers. Click on **File** • **Save** and you will be prompted for a text file name to save the Log Viewer contents. Email this text file to DALSA Technical Support when requested or as part of your initial contact email.

Although the information collected by the Log Viewer seems complicated, you can make some initial diagnostics by checking the status of the DALSA driver. In the screen shot below, note the highlighted line which states [... CORX64iProL.DLL ... Found 1 X64-CL iPro board (s) ...]. This confirms that the driver can communicate with the X64-CL iPro.

| 📉 D | ALS/ | Log Vi | ewer | |
|------|------|---|--|---|
| Elle | Edit | Options | Help | |
| | | <inf> <1 <inf> <1 <inf> <1 <inf> <1</inf></inf></inf></inf> | 0.50.11.009 0.50.11.071 0.50.11.103 0.50.11.103 | CORMEM.SYS: CORMEMMAPPOOL => Physical: 0x03e43000 Linear: 0x8844000 Viitual: 0x00ad3000 : ft/dev_sapera_ll_600\sapera/driver\commons/ > CORX64ProL.DLL, ProcessID=0 : \Dev/X64CL_Pro120.sub/externals/x64/driver\user\X64apic (385) > CORX64ProL.DLLV_externals/x64/driver\user\X64apic (801) > CORX64ProL.DLLX_S44_InitOnce: X64_EndBoards - Found 1 X64-CL_Pro Board(s) : \Dev/X64-CL_Pro 120.sub/externals/x64\driver\user\X64 = = = = = = = = = = = = = = = = = |
| | | <inf> <1 <inf> <1 <inf> <1 <inf> <1 <inf> <1 <inf> <1 <inf> <1 <inf> <1</inf></inf></inf></inf></inf></inf></inf></inf> | 0:50:11:212 0:50:11:650 0:50:11:681 0:50:11:681 0:50:19:525 0:50:19:525 | > CURXS4ProL.DLL: XS4_Leprom_Init: No XIU Module detected: Ustimit/Ds : \Dev:X64-L_LPro.120.sub/externals/X64Variver/user/X64&eprom.c |
| | | | 0.50.19.540 0.50.19.540 0.50.19.540 0.50.19.540 0.50.19.587 0.50.19.634 | CDRX64/Pro. SYS: CorSerialCreatePorts => Board[1]: Client Serial Port[0] Created : dt/dev.x64-cl_ipro.120.sub/drivert/kernel/win2000/ms/corserc >> CDRX64/ProL.DLL: X64_FPGA_Loaded with C:/DALSA Coreco/X64-CL_iPro.1ypgas/X64-CL_iPro.1Pro.120.sub/drivert/kernel/win2000/ms/corserc >> CDRX64/ProL.DLL: Ch. File C:/DALSA Coreco/X64-CL_iPro.1pgas/X64-CL_iPro.1Pro.1420.sub/ >> CDRX64/ProL.DLL: C:/DALSA Coreco/X64-CL_iPro.1pgas/X64-CL_iPro.120.sub/externals >> CDRX64/ProL.DLL: X64_150_A3_32.cbn Version 1200 : /Dev.X64-CL_iPro.120.sub/externals/X64/Digital/drivert/Jsert/X64ManagerCL.c (891) >> CDRX64/ProL.DLL: X64_150_A3_34.cbn Version 1200 : /Dev.X64-CL_iPro.120.sub/externals/X64/Digital/drivert/Jsert/X64ManagerCL.c (891) |

Windows Device Manager

In Windows XP, use the Start Menu shortcut Start • Settings • Control Panel • System • Hardware • Device Manager. As shown in the following screen images, look for X64-CL iPro board under "Imaging Devices". Double-click and look at the device status. You should see "This device is working properly." Go to "Resources" tab and make certain that the device is mapped and has an interrupt assigned to it, without any conflicts.

| 🔒 Device Manager 📃 🗖 🔀 | X64-CL iPro Board Properties |
|--|---|
| Eile Action ⊻iew Help | General Driver Details Resources |
| Elle Action Yiew Help Image: Second Sec | General Driver Details Resources Several Driver Details Resources X64-CL iPro Board Device type: Imaging devices Manufacturer: DALSA Coreco Location: PCI Slot 1 (PCI bus 4, device 0, function 0) Device status This device is working properly. If you are having problems with this device, click Troubleshoot to start the troubleshooter. Iroubleshoot Device usage: Use this device (enable) |
| + 🚭 Universal Serial Bus controllers | OK Cancel |

Windows Device Manager

Windows Xp で、スタートメニューのショートカットを使用して

"スタート"→ "コントロールパネル"→ "システム"→ "ハードウェア"→ "デバイス・マネージャー"を 起動して、"X64 iPro Board Properties"を開き動作している事を確認します。

また、"Recource"タブを開き、デバイスがマップされているかどうかを確認します。

改訂履歴

| 改訂履歴 | | |
|------|-----|------------|
| 改訂内容 | 改訂者 | 改訂日 |
| 新規作成 | | 2012/09/28 |

Memo