

## Active Silicon Phoenix and FireBird (CameraLink)

### DCAM Version

|             |               |                             |
|-------------|---------------|-----------------------------|
| DCAM Module | 19.1.322.5703 | (for 32-bit)                |
|             | 19.1.642.5703 | (for 64-bit)                |
| DRIVER      | 6.86.300.5703 | (for PHX; D24CL-PE1)        |
|             | 7.05.140.5703 | (for FBD; 1xCLD-2PE8)       |
|             | 8.13.300.5703 | (for FBD; 2PE4, 2xCLD-2PE8) |

### Cards

| Cards                       | Camera Link Configuration              | PC Bus Type                       | Support OS   | Note   |
|-----------------------------|--|-----------------------------------|--|--|
| <b>AS-PHX-D24CL-PE1</b>     | Base                                   | PCI Express x1                    | <b>Windows 7 / 8 / 8.1 / 10</b><br>32-bit / 64-bit (x64) | Half Length  |
| <b>AS-FBD-1XCLD-2PE8</b>    | Deca                                   | PCI Express x8 Gen2<br>(*15)(*22) |  | Half Length /<br>Dual Slot                                 |
| <b>AS-FBD-2XCLD-2PE8</b>    | Dual Deca                              |                                   |  | Half Length<br>Low Profile<br>PCB - Full<br>Height Bracket |
| <b>AS-FBD-1XCLD-2PE4L-F</b> | Deca / Dual<br>Base / Full /<br>Medium | PCI Express x4 Gen2<br>(*15)      |  | Half Length<br>Low Profile<br>PCB - Low<br>Height Bracket  |
| <b>AS-FBD-1XCLD-2PE4L-L</b> | Deca / Dual<br>Base / Full /<br>Medium | PCI Express x4 Gen2<br>(*15)      |  |  |

### Cameras

#### Fast speed CameraLink cameras

| Cameras              | Nickname           | Supported Card  | Note  |
|----------------------|--------------------|---|-------|
| <b>C13440-20C(U)</b> | ORCA-Flash4.0 (V3) | <b>AS-FBD-1XCLD-2PE4L-F</b><br><b>AS-FBD-1XCLD-2PE4L-L</b><br>AS-FBD-2XCLD-2PE8 |       |
| <b>C11440-22C(U)</b> | ORCA-Flash4.0 (V2) | <b>AS-FBD-1XCLD-2PE8</b><br>AS-FBD-2XCLD-2PE8                                   |       |
| <b>C11440-10C</b>    | ORCA-Flash2.8      | <b>AS-PHX-D24CL-PE1</b>   | (*18) |
| <b>C10000-A01</b>    | TDI Board Camera   |   |       |
| <b>C10000-801</b>    | TDI Camera         |   |       |

#### CameraLink cameras

| Cameras                | Nickname               | Supported Card          | Note |
|------------------------|------------------------|-------------------------|------|
| <b>C8000-30</b>        |                        | <b>AS-PHX-D24CL-PE1</b> |      |
| <b>C8484-xxC(P)</b>    |                        |                         |      |
| <b>C9100-13</b>        | ImagEM                 |                         |      |
| <b>C9100-14</b>        | ImagEM 1K              |                         |      |
| <b>C9750-xxxx(N-C)</b> | X-Ray Line             |                         |      |
| <b>C10400-xx</b>       |                        |                         |      |
| <b>C10650-xx</b>       | X-Ray TDI              |                         |      |
| <b>C12200-321/461</b>  |                        |                         |      |
| <b>C12300-321</b>      |                        |                         |      |
| <b>C10800-xx-C</b>     | X-Ray Line Dual Energy |                         |      |

### Recommendation

It is highly recommended to disable C-state processor control in your PC's BIOS, else you may get sporadic corrupted images transferred to the PC. See Note (\*23).

## Active Silicon FireBird (CoaXPress)

### DCAM Version

|             |               |                   |
|-------------|---------------|-------------------|
| DCAM Module | 19.1.642.5703 | (for 64-bit)      |
| DRIVER      | 8.26.700.5703 | (for 4XCXP6-2PE8) |
|             | 8.26.500.5703 | (for 2XCXP6-2PE8) |

### Cards

| Cards                              | PC Bus Type         | Support OS                                      | Note        |
|------------------------------------|---------------------|---|-------------|
| <a href="#">AS-FBD-4XCXP6-2PE8</a> | PCI Express x8 Gen2 | <b>Windows 7 / 8 / 8.1 / 10</b><br>64-bit (x64) | Half Length |
| <a href="#">AS-FBD-2XCXP6-2PE8</a> | PCI Express x8 Gen2 |   | Half Length |

### Cameras

CoaXPress cameras

| Cameras            | Nickname       | Supported Card            | Note |
|--------------------|----------------|---------------------------|------|
| <b>C14120-20P</b>  | ORCA-Lightning | <b>AS-FBD-4XCXP6-2PE8</b> |      |
| <b>C14440-20UP</b> | ORCA-Fusion    | <b>AS-FBD-2XCXP6-2PE8</b> |      |

### Recommendation

It is highly recommended to disable C-state processor control in your PC's BIOS, else you may get sporadic corrupted images transferred to the PC. See Note (\*23).

## Active Silicon Phoenix (LVDS/RS422)

### DCAM Version

|             |               |              |
|-------------|---------------|--------------|
| DCAM Module | 19.1.322.5703 | (for 32-bit) |
|             | 19.1.642.5703 | (for 64-bit) |
| DRIVER      | 6.86.400.5703 |              |

### Cards

| Cards                 | PC Bus Type    | Support OS   | Note        |
|-----------------------|----------------|--|-------------|
| <b>AS-PHX-D36-PE1</b> | PCI Express x1 | <b>Windows 7 / 8 / 8.1 / 10</b><br>32-bit / 64-bit (x64) | Half Length |

### Cameras

LVDS/RS-422 cameras

| Cameras          | Nickname   | Supported Cards       | Note |
|------------------|------------|-----------------------|------|
| <b>C9750-xx</b>  | X-Ray Line | <b>AS-PHX-D36-PE1</b> |      |
| <b>C10400-xx</b> |            |                       |      |

LVDS Color camera

| Cameras         | Nickname  | Supported Cards       | Note |
|-----------------|-----------|-----------------------|------|
| <b>C7780-xx</b> | ORCA-3CCD | <b>AS-PHX-D36-PE1</b> |      |

### Recommendation

It is highly recommended to disable C-state processor control in your PC's BIOS, else you may get sporadic corrupted images transferred to the PC. See Note (\*23).

# GigE

## DCAM Version

|             |                |              |
|-------------|----------------|--------------|
| DCAM Module | 19.1.339.5703  | (for 32-bit) |
|             | 19.1.659.5703  | (for 64-bit) |
| DRIVER      | 4.1.53702.5703 |              |

## Cameras

| Camera or Sensors       | Nickname          | Support OS   | Note |
|-------------------------|-------------------|--|------|
| <b>C12902D-40</b>       | Flat Panel Sensor | <b>Windows 7 / 8 / 8.1 / 10</b><br>32-bit / 64-bit (x64) |      |
| <b>C12903D-40</b>       |                   |  |      |
| <b>C12504D-56</b>       |                   |  |      |
| <b>C12505D-56</b>       |                   |  |      |
| <b>C10500D-42/43/70</b> |                   |  |      |
| <b>C10502D-42/43/70</b> |                   |  |      |
| <b>C10900D-40</b>       |                   |  |      |
| <b>C10901D-40</b>       |                   |  |      |
| <b>C11700DK-40</b>      |                   |  |      |
| <b>C11701DK-40</b>      |                   |  |      |

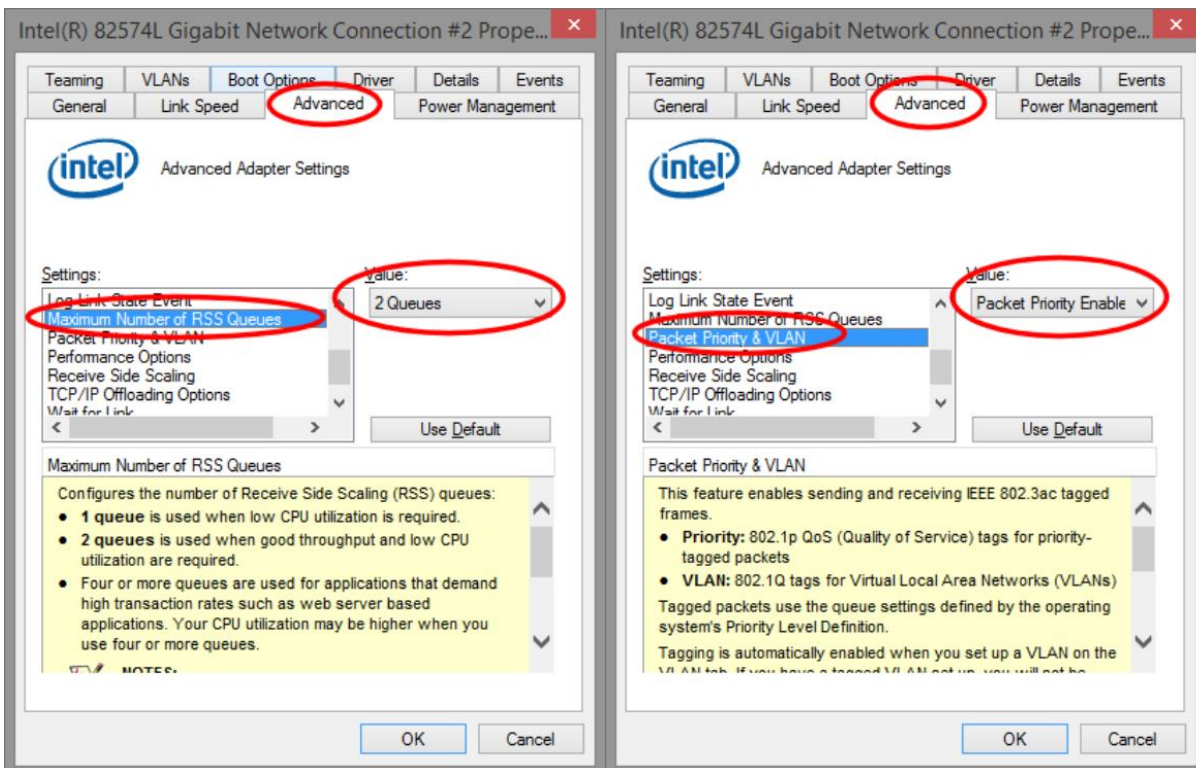
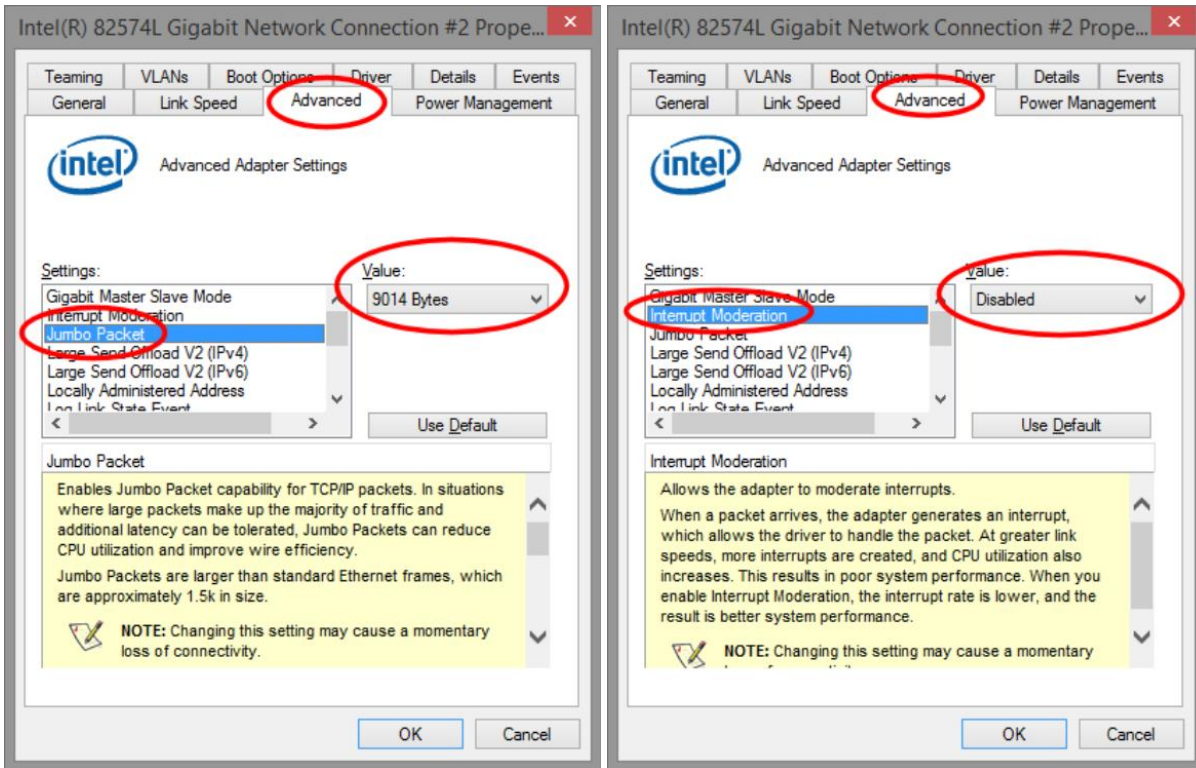
## Recommendations

See the next pages.

# GigE – Cont'd

## Recommendations

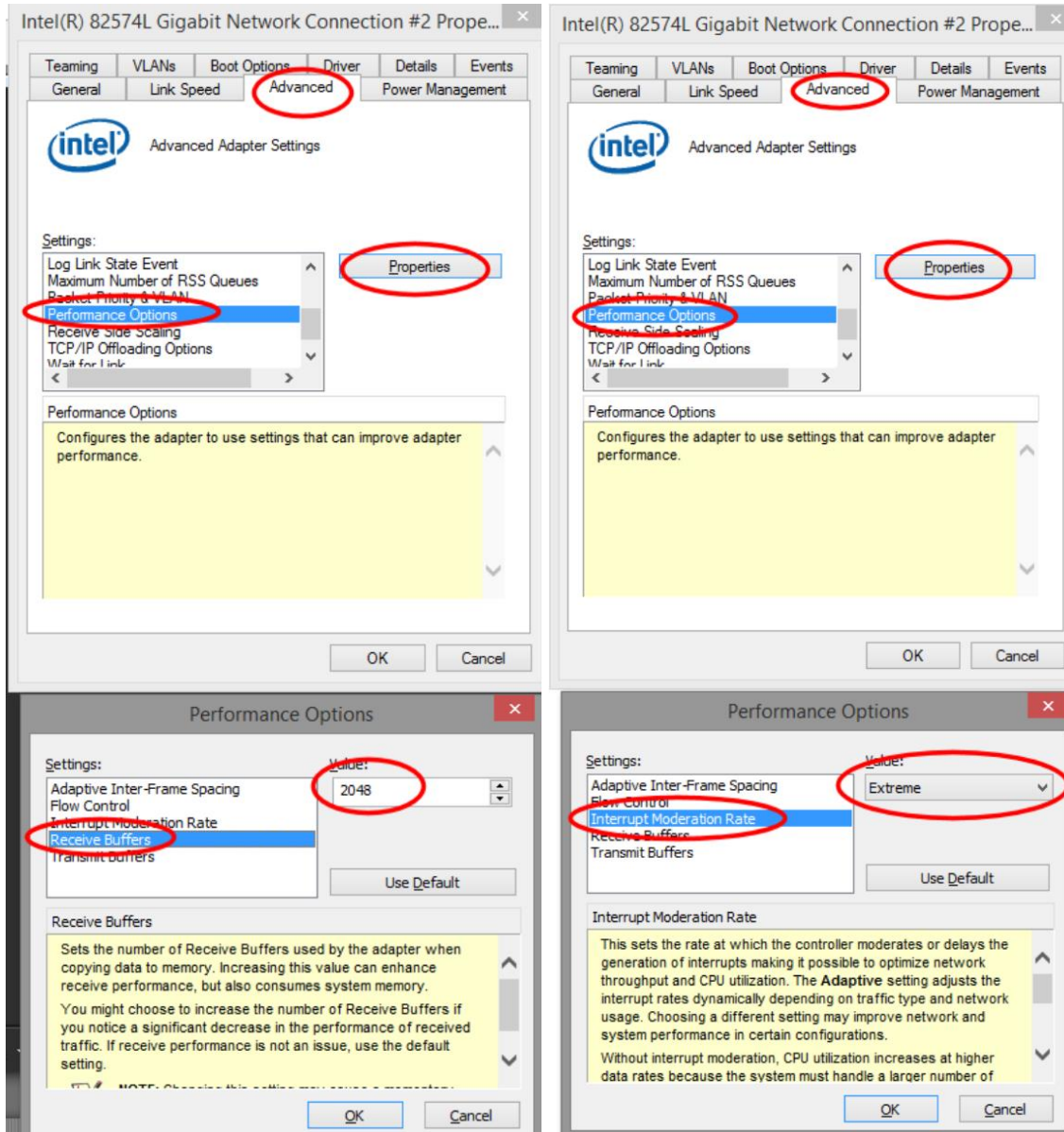
It is highly recommended to tweak these settings for the Gigabit Network Adapter for which the GigE device is connected, provided they are available for adjustment in Device Manager \ Properties for the adapter driver:



## GigE – Cont'd

### Recommendations

It is highly recommended to tweak these settings for the Gigabit Network Adapter for which the GigE device is connected, provided they are available for adjustment in Device Manager \ Properties for the adapter driver:



#### Notables:

- Jumbo Packets has the biggest effect to sustainable FPS and bandwidth. Set this setting to the highest possible by the adapter driver.
- Receive buffers should be set to maximum allowed by the driver if the setting exists.
- Interrupt Moderation Disabled and/or Interrupt Moderate Rate Extreme may cause a single CPU stress to increase, but FPS is very stable at high rates.

## USB

### DCAM Version

|             |               |                          |
|-------------|---------------|--------------------------|
| DCAM Module | 19.1.322.5703 | (for 32-bit)             |
|             | 19.1.642.5703 | (for 64-bit)             |
| DRIVER      | 1.2.6.5703    | (for USB 3.0 and C10633) |
|             | 2.12.2.5703   | (for others)             |

### Cameras

| Cameras                                  | Nickname                               | USB2.0 | USB3.0 | Support OS   | Note  |       |
|--|--|--------|--------|--|---|-------|
| <b>C14440-20UP</b>                       | ORCA-Fusion                            |        | ✓      | <b>Windows 8 / 8.1 / 10</b><br>32-bit / 64-bit (x64)     |   |       |
| <b>C13440-20CU</b>                       | ORCA-Flash4.0 (V3)                     |        | ✓      |  |   |       |
| <b>C13949-50U</b>                        | Global Shutter CMOS Board Camera (12M) |        | ✓      |  |   |       |
| <b>C13770-50U</b>                        | Global Shutter CMOS Board Camera (5M)  |        | ✓      |  |   |       |
| <b>C13752-50U</b>                        | Global Shutter CMOS Board Camera (3M)  |        | ✓      |  |   |       |
| <b>C14041-10U</b>                        | InGaAs QVGA Camera                     |        | ✓      |  |   |       |
| <b>C12741-03</b>                         | InGaAs VGA Camera                      |        | ✓      |  |   |       |
| <b>C11440-62U</b>                        | ORCA-Flash4.0 Board                    |        | ✓      |  |   |       |
| <b>C11440-52U</b>                        | ORCA-Flash4.0 Board                    |        | ✓      |  | <b>Windows 7</b> (*19)<br>32-bit / 64-bit (x64) | (*24) |
| <b>C11440-52U30</b>                      |  |        |        |  |   |       |
| <b>C11440-42U</b>                        | ORCA-Flash4.0 LT                       |        | ✓      |  |   | (*24) |
| <b>C11440-42U30</b>                      |  |        |        |  |   |       |
| <b>C11440-36U</b>                        | Global Shutter CMOS Camera             |        | ✓      |  |   |       |
| <b>C11440-22CU</b>                       | ORCA-Flash4.0 (V2)                     |        | ✓      |  |   | (*24) |
| <b>C14300-05U</b>                        | X-Ray                                  |        | ✓      |  |   |       |
| <b>C12849-101U</b><br><b>C12849-102U</b> | X-Ray CMOS                             |        | ✓      |  |   | (*24) |
| <b>C10400</b>                            | X-Ray                                  | ✓      |        | <b>Windows 7 / 8 / 8.1 / 10</b><br>32-bit / 64-bit (x64) |   |       |
| <b>C10650</b>                            | X-Ray TDI                              | ✓      |        |  |   |       |
| <b>C10990</b>                            | CCD Board camera                       | ✓      |        |  |   |       |
| <b>C10633-13/23</b>                      | InGaAs camera                          | ✓      |        |  |   |       |
| <b>C9728DK-10</b>                        | Flat panel sensor                      | ✓      |        | <b>Windows 7 / 8 / 8.1</b><br>32-bit / 64-bit (x64)      |   |       |
| <b>C9730DK-10</b>                        |  | ✓      |        |  |   |       |
| <b>C9732DK-11</b>                        |  | ✓      |        |  |   |       |

# 1394 OHCI

## DCAM Versions

|             |               |              |
|-------------|---------------|--------------|
| DCAM Module | 19.1.322.5703 | (for 32-bit) |
|             | 19.1.642.5703 | (for 64-bit) |
| DRIVER      | 10.0.0.5703   |              |

## Cameras

| Cameras              | Nickname     | 400Mbps<br>Max Card<br>Speed | 800Mbps<br>Max Card<br>Speed | Support OS   | Note  |  |
|----------------------|--------------|------------------------------|------------------------------|--|---|--|
| <b>C9100-24B</b>     | ImagEM X2 1K | n/a                          | <b>BEST</b>                  | <b>Windows 8 / 8.1 / 10</b><br>32-bit / 64-bit (x64) |   |  |
| <b>C11090-22B</b>    | ORCA-II      | n/a                          | <b>BEST</b>                  |  |   |  |
| <b>C9100-23B</b>     | ImagEM X2    | n/a                          | <b>BEST</b>                  |  |   |  |
| <b>C10600-10B</b>    | ORCA-R2      | poor                         | <b>BEST</b>                  |  | (*1)  |  |
| <b>C11254-10B</b>    | ORCA-D2      | poor                         | <b>BEST</b>                  |  | (*1)  |  |
| <b>C4742-80-12AG</b> | ORCA-AG      | good                         | <b>BEST</b>                  |  | <b>Windows 7 (*20)/(*21)</b><br>32-bit / 64-bit (x64) |  |
| <b>C8484-xxG02</b>   | ORCA-xxG     | good                         | <b>BEST</b>                  |  |   |  |
| <b>C9664-01G02</b>   |              | good                         | <b>BEST</b>                  |  |   |  |

## Required

The IEEE-1394 card must have OHCI compatibility with Microsoft's Inbox Drivers.

## Recommendations

- PCI Express x1 cards are better than PCI 32-bit/64-bit cards in desktops.
- ExpressCard is better than CardBus and PCMCIA cards in notebooks.
- Avago Technologies / LSI FW643 is the best PHY/Link IC for an IEEE-1394 interface card.
- It is highly recommended to disable C-state processor control in your PC's BIOS, else you may get sporadic corrupted images transferred to the PC. See Note (\*23).



Notes

\*New: New supported hardware or OS from the 18.8.5609 release.

\*1: C10600-10B (ORCA-R2) and C11254-10B(ORCA-D2) have limitations for full performance with IEEE-1394 400Mbps port.

\*2: This note is deprecated.

\*3: This note is deprecated.

\*4: This note is deprecated.

\*5: This note is deprecated.

\*6: This note is deprecated.

\*7: This note is deprecated.

\*8: This note is deprecated.

\*9: This note is deprecated.

\*10: This note is deprecated.

\*11: This note is deprecated.

\*12: This note is deprecated.

\*13: This note is deprecated.

\*14: This note is deprecated.

\*15: PCIe x4 and x8 slot compatibility - For example, this is information comparing PCIe slot compatibility for some known Dell Precision Workstations and Dell Optiplex Desktops:

>Workstation T3600 or newer series

All slots are clearly labeled on the motherboard with their maximum link negotiation speed, width, as well as max power.

>Workstation T7500

Slot 2 PCI Express Gen2 x16 with support for up to 300W, full length, full height. Can support x8, x4 and x1 down shift.

(All Class Code cards should work, but certain cards may fall outside of spec. Report any issues.)

Slot 4 PCI Express Gen2 x16 with support for up to 225W, full length, full height. Can support x8, x4 and x1 down shift.

(All Class Code cards should work, but certain cards may fall outside of spec. Report any issues.)

Slot 1 PCI Express Gen2 x16 wired as x8 slot with support for up to 75W – half length, full height.

Can support x8, x4 and x1 down shift.

Slot 3 PCI Express Gen2 x16 wired as x8 slot with support for up to 75W – full length, full height.

Can support x8, x4 and x1 down shift.

Slot 6 PCI Express Gen2 x16 wired as x4 slot with support for up to 75W - full length, full height.

Can support x4, x1 down shift.

>Workstation T5500

Slots 2,4 PCI Express x16 with support for up to 225W – full length, full height. Can support x8, x4 and x1 down shift.

(All Class Code cards should work, but certain cards may fall outside of spec. Report any issues.)

Slot 1 PCI Express Gen2 x16 wired as x8 slot with support for up to 75W – half length, full height.

Can support x8, x4 and x1 down shift.

Slot 3 PCI Express Gen2 x16 wired as x8 slot with support for up to 75W – full length, full height.

Can support x8, x4 and x1 down shift.

>Workstation T3500

Slots 2,4 PCI Express x16 with support for up to 225W – full length, full height. Can support x8, x4 and x1 down shift.

(All Class Code cards should work, but certain cards may fall outside of spec. Report any issues.)

Slots 1,3 PCI Express x8 wired as x4 slot with support for up to 75W – half length, full height.

Can support x4 and x1 down shift.

>Workstation T1500

Slot 1 PCI Express x16 with support for up to 75W – half length, full height. Can support x8, x4, and x1 down shift.

(All Class Code cards should work, but certain cards may fall outside of spec. Report any issues.)

Here is some compatibility information for some known HP Workstations:

> HP Z220, Z420, Z620, and Z820 Workstations

- View the [Maintenance and Service Guide](#)
  - Component replacement guidelines
    - Expansion slots

> HP Z210 CMT Workstation

- View the [Maintenance and Service Guide](#)
  - Component replacement guidelines
    - Expansion slots

## Notes – Cont'd

>Z400 Workstation (Taken from the HP Z400 Maintenance and Service Guide)

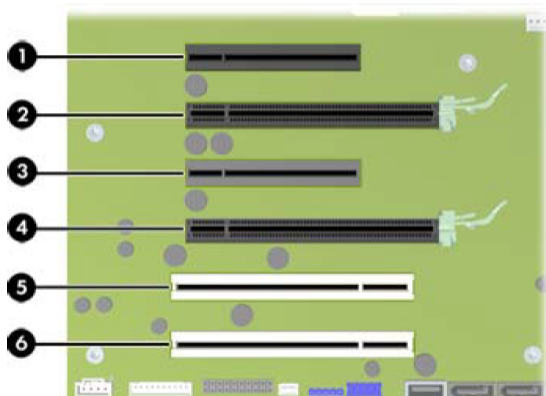
### Expansion card slot identification

This section identifies and describes workstation expansion card slots, and presents card configuration information.

#### Slot identification and description

The following figure identifies workstation expansion card slots.

Identifying expansion card slots



The following table describes the workstation PCIe card slots.

| Slot | Type          | Slot power<br>(Maximum) |
|------|---------------|-------------------------|
| 1    | PCIe2 - x8(4) | 25W                     |
| 2    | PCIe2 - x16   | 75W                     |
| 3    | PCIe - x8(4)  | 25W                     |
| 4    | PCIe2 - x16   | 75W                     |

**NOTE:** The x1, x4, x8, and x16 designators describe the mechanical length of the slot. The number in parentheses shows how many electrical PCIe lanes are routed to the expansion slot. For example, x16(8) means that the expansion slot is mechanically a x16 length connector, with eight PCIe lanes connected. A x16 PCIe card runs at the bandwidth of the slot it is plugged into.

Slots one and three use open-ended PCIe connectors, so a PCIe x16 card can be inserted. Graphics cards greater than 75 watts require the use of an auxiliary power cable adapter.

### Expansion card

PCIe I/O slots can support other PCIe cards with less bus bandwidth than what is physically defined for the slot.

#### Expansion card slot description

**NOTE:** The x1, x4, x8, and x16 designators describe the mechanical length of the slot. The number in parentheses shows how many electrical PCIe lanes are routed to the expansion slot. For example, x16(8) means that the expansion slot is mechanically a x16 length connector, with eight PCIe lanes connected. A x16 PCIe card runs at the bandwidth of the slot it is plugged into.

Use the following table to determine PCIe card compatibility.

| Workstation PCIe compatibility matrix |                           |                          |
|---------------------------------------|---------------------------|--------------------------|
| Slot                                  | Mechanical compatibility  | Electrical compatibility |
| 1                                     | x8 connector, open-ended* | PCIe2 (x1, x4)           |
| 2                                     | x16 connector             | PCIe2 (x1, x4, x8, x16)  |
| 3                                     | x8 connector, open-ended† | PCIe (x1, x4)            |
| 4                                     | x16 connector             | PCIe2 (x1, x4, x8, x16)  |

\* This slot is open-ended so a PCIe x16 card can be inserted.

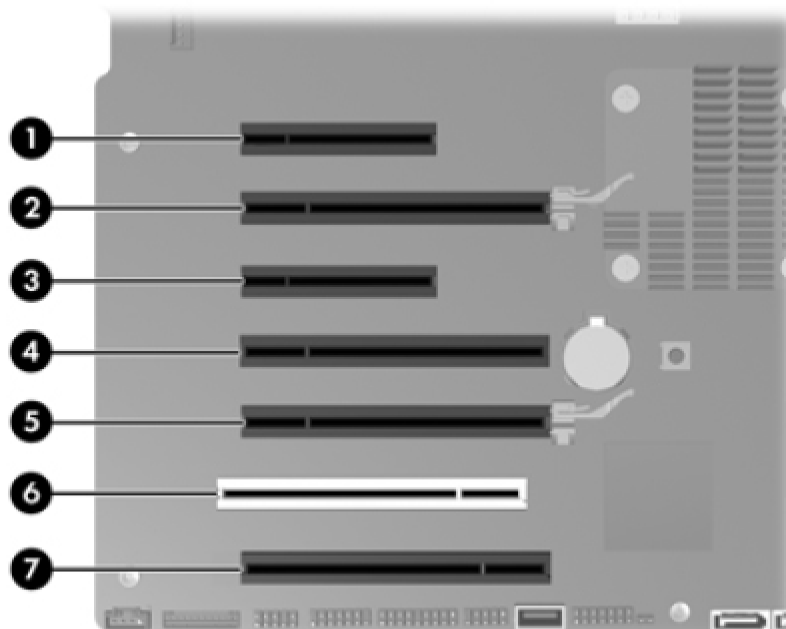
- Slots one, two, and four are PCIe GEN2 slots.
- Graphics cards greater than 75 watts require the use of an auxiliary power cable adapter.

>Z800 Workstation (Taken from the HP Z800 Maintenance and Service Guide)

## Expansion card slot description

The following figure identifies workstation expansion card slots.

Identifying expansion card slots



The following table describes the workstation expansion card slots.

**Expansion card slot description and compatibility**

| Slot           | Type                      | Mechanical compatibility | Electrical compatibility | Slot power (Maximum) |
|----------------|---------------------------|--------------------------|--------------------------|----------------------|
| 1 <sup>1</sup> | PCIe2 x8(4)<br>open-ended | x1, x4, x8, x16          | x1, x4                   | 25W                  |
| 2 <sup>1</sup> | PCIe2 x16 <sup>2</sup>    | x1, x4, x8, x16          | x1, x4, x8, x16          | 75W                  |
| 3              | PCIe x8(4)<br>open-ended  | x1, x4, x8, x16          | x1, x4                   | 25W                  |
| 4 <sup>1</sup> | PCIe2 x16(8)              | x1, x4, x8, x16          | x1, x4, x8               | 25W                  |
| 5 <sup>1</sup> | PCIe2 x16 <sup>4</sup>    | x1, x4, x8, x16          | x1, x4, x8, x16          | 75W                  |
| 7              | PCIe2 x16(8)              | x1, x4, x8, x16          | x1, x4, x8               | 25W                  |

<sup>1</sup> PCIe GEN2 slot.

<sup>2</sup> Primary graphics slot

<sup>4</sup> Secondary graphics slot

**NOTE:** The x1, x4, x8, and x16 designators describe the number of electrical PCIe lanes routed to an expansion slot. For example, x16(8) means that the expansion slot is mechanically a x16 length connector, with eight PCIe lanes connected.

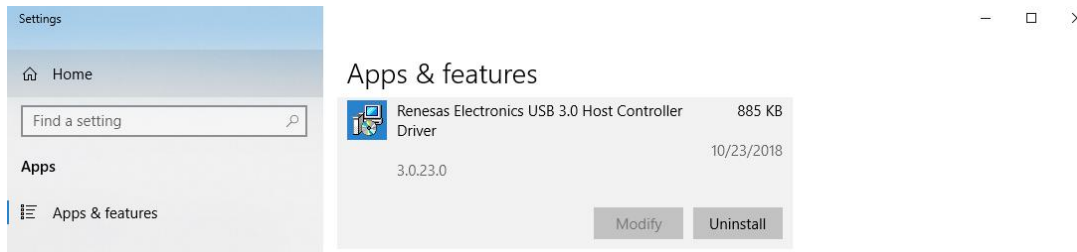
Slots one and three use open-ended PCIe connectors, so a PCIe x16 card can be inserted. This allows the workstation to support more PCIe x16 expansion cards. A x16 card typically trains and runs at the maximum lane width available by the expansion slot. The card runs at the reduced lane width, with a corresponding performance decrease.

A x16 graphics card runs at the bandwidth of the slot it is plugged into. The slot bandwidth can be x1, x4, x8, or x16. A PCIe card can be plugged into a slot with a lesser speed. It runs at that speed with a commensurate performance decrease. (Older graphics cards may not comply with this.)

- \*16: This note is deprecated.
- \*17: This note is deprecated.
- \*18: The C11440-10C (ORCA-Flash 2.8) with a Phoenix PE1 card requires the camera firmware version to be 1.1 or newer.
- \*19: These hardware must be connected to a USB 3.0 compliant bus. If these hardware are connected to a [Renesas  \$\mu\$ PD720202](#) chipset controller in **Windows 7**, download this Renesas driver:

[ftp://60.248.38.84/cat\\_106/30230\\_dr.zip](ftp://60.248.38.84/cat_106/30230_dr.zip)

- (a) After you download this driver set, extract the contents to a folder on your PC.
- (b) Go to Add or remove programs, scroll down and look for this entry, and if you see it, Uninstall it:



- (c) Install this driver set with this exact command line (including switches) from within the folder you extracted the driver set:

```
RENESAS-30230-setup.exe /s /v"NO_MONITOR=1 NO_UTILITY=1 SET_SELSUS_MODE1=1
U1U2_DISABLE=1 U1U2_UTL_DISABLE=1 U1U2_PROPERTY_DISABLE=1"
```

This exact command line can be downloaded from this link:

<ftp://hamamatsu.hostedftp.com/~hamamatsu/DCAM-API/Renesas/RENESAS-30230-setup.cmd>

If you download this .CMD file to the same folder as RENESAS-30230-setup.exe from step (a), you should be able to execute it AsAdmin to run with the exact noted command line with switches to install the driver properly.

- \*20 For 1394 and Windows 7 only, it is recommended that you install Service Pack 1:

<http://support.microsoft.com/kb/976932>

Microsoft has made many improvements to their 1394 driver stack which are incorporated in SP1 and not necessarily documented or included in RTM hotfixes.

- \*21 For 1394 and Windows 7 only, if your experiment requires you to make many captures with various binning, sub-array, scan speed, and/or data type settings over hours of operation (usually more than 1 hour), there is a known bug inside Microsoft's latest driver standard driver stack which could present itself through our API to the host application as an "Out of Resource" or "No Resource" error. When this happens, there is no way to recover capturing again from our 1394 device unless you exit your current application, power cycle the device, and restart the experiment manually. We have traced the root cause of the problem. It happens when our lower drivers cannot free 1394 Isochronous bandwidth properly through the Microsoft drivers, we can no longer re-use that bandwidth, and further allocations we require will fail.

If you experience the above known issue, it is recommended you install SP1 if you are not at this level:

<http://support.microsoft.com/kb/976932>

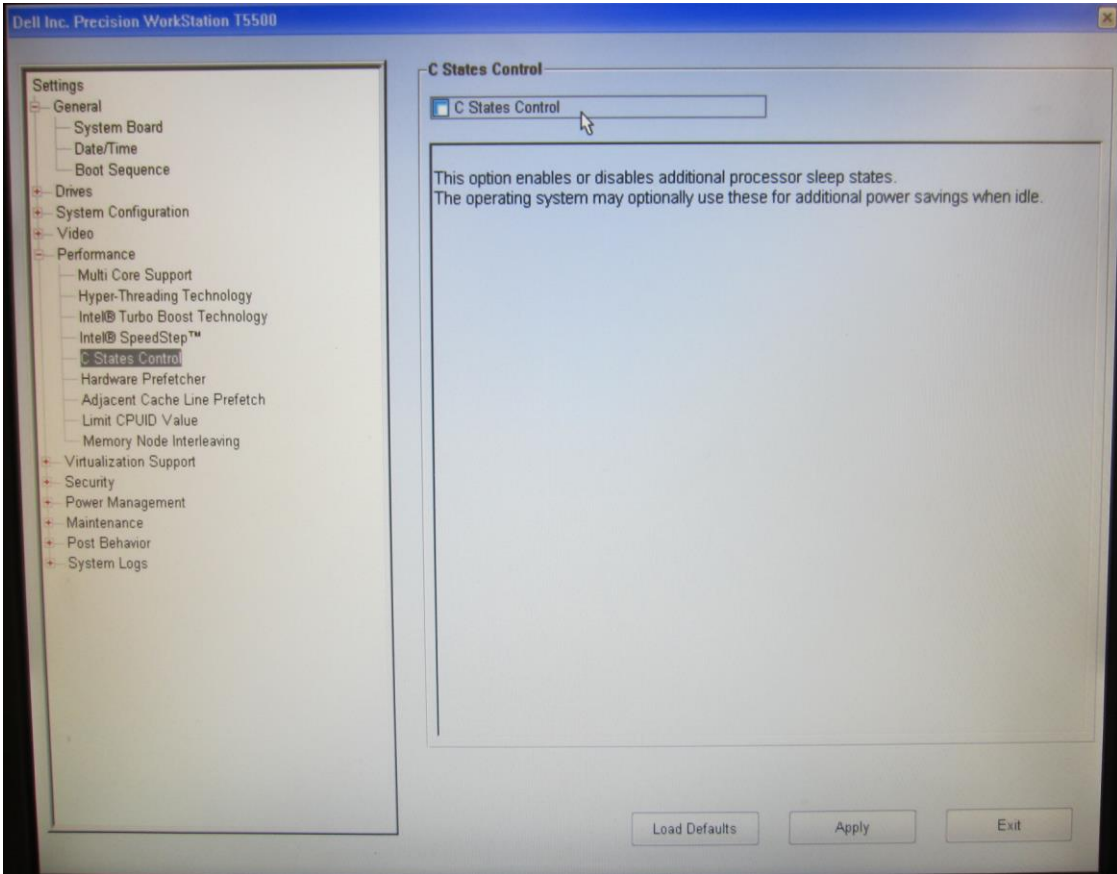
Microsoft has released an official hotfix to address this issue:

<http://support.microsoft.com/kb/2524249>

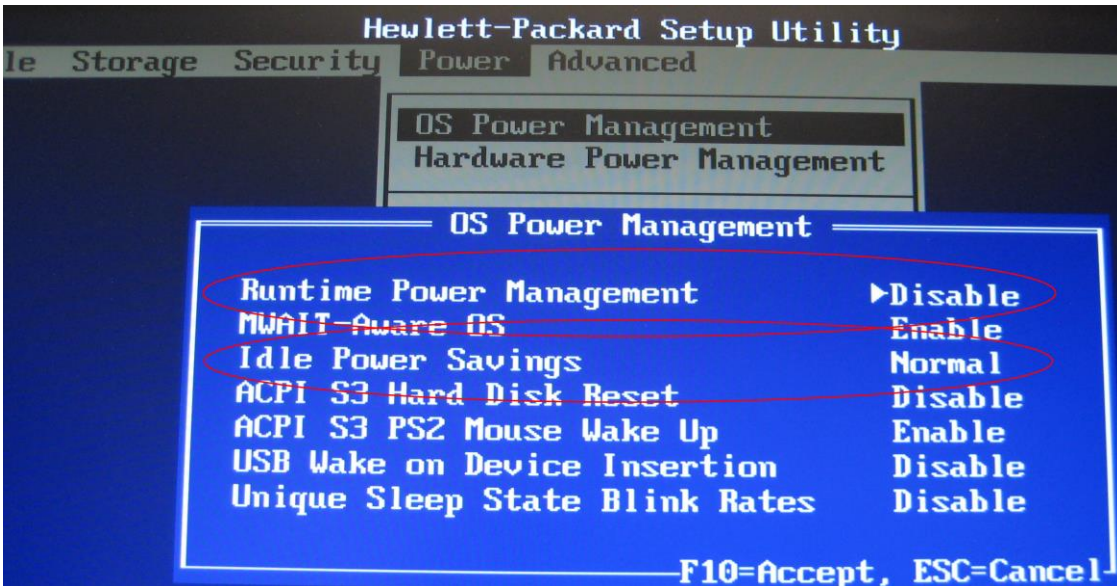
If you configured your IEEE1394 Bus controller driver for Legacy per a previous Compatibility Note recommendation, you should revert your IEEE 1394 Bus Controller driver away from Legacy and back to the Standard driver to use this hotfix and be the most stable. The Legacy driver is provided in Windows 7 only for backward driver compatibility. It will likely not evolve in stability and function beyond its current state.

- \*22 The FireBird 2PE8 cards operate optimally with PCIe x8 Gen2 slots. Please make sure you install this card into an electrically compatible PCIe x8 Gen2 slot. If you have a Dell or HP Workstation, please reference to (\*15) above.
- \*23 For all PCIe interface options, it is highly recommended to disable C-state processor control in your PC's BIOS. Most PC manufacturers (such as Dell and HP) ship with C-state processor control enabled from the factory. When this is enabled, the processor may drop in and out of S0 maximum power state – when this happens, if you are transferring image data across the PCIe bus, it may get interrupted to the point where data becomes corrupted or lost. It is also known that C-state being enabled can affect the overall maximum bandwidth of particular PCIe slots on the motherboard. For critical image capturing, insure S0 power state is always maximum – the best way to do it is to tweak the BIOS for such control.

For example, if you have a Dell T3500, T5500, and/or T7500, the setting appears in the BIOS under Performance:



If you have an HP Z400 or Z800 Workstation, it appears in the BIOS here:



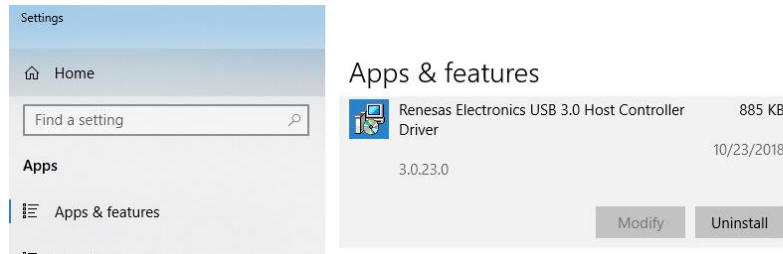
Set Runtime Power Management to Disable and Idle Power Savings to Normal. For a further description from HP (Taken from Computer Setup(F10) Utility):

| Computer Setup—Power |   |
|----------------------|---|
| Option               | Description   |
| OS Power Management  | <ul style="list-style-type: none"> <li>Runtime Power Management— Enable/Disable. Allows certain operating systems to reduce processor voltage and frequency when the current software load does not require the full capabilities of the processor.</li> <li>Idle Power Savings—Extended/Normal. Allows certain operating systems to decrease the processors power consumption when the processor is idle.</li> </ul> |

- \*24 These hardware must be connected to a USB 3.0 compliant bus, and the drivers for the USB 3.0 chipset controller must be operational in Device Manager (check the card or PC manufacturer's website for proper drivers if Windows 7. Windows 8 and higher ship with in-box USB xHCI compliant drivers from Microsoft that can work with any known USB3 chipset controller), and the USB 3.0 chipset controller must be installed/operating on a PCI Express / ExpressCard **Gen2** (5GT/s) capable slot / bus. [Renesas  \$\mu\$ PD720202](#) is the most compatible USB host controller chipset with these hardware. When using the Renesas  $\mu$ PD720202 controller and these hardware, download this Renesas driver, **even if you are using Windows 8 or higher** – the Microsoft in-box drivers do not work as well as the Renesas drivers when coupled with these hardware:

[ftp://60.248.38.84/cat\\_106/30230\\_dr.zip](ftp://60.248.38.84/cat_106/30230_dr.zip)

- (d) After you download this driver set, extract the contents to a folder on your PC.  
 (e) Go to Add or remove programs, scroll down and look for this entry, and if you see it, Uninstall it:



- (f) Install this driver set with this exact command line (including switches) from within the folder you extracted the driver set:

```
RENESAS-30230-setup.exe /s /v"NO_MONITOR=1 NO_UTILITY=1 SET_SELSUS_MODE=1
U1U2_DISABLE=1 U1U2_UTL_DISABLE=1 U1U2_PROPERTY_DISABLE=1"
```

This exact command line can be downloaded from this link:

<ftp://hamamatsu.hostedftp.com/~hamamatsu/DCAM-API/Renesas/RENESAS-30230-setup.cmd>

If you download this .CMD file to the same folder as RENESAS-30230-setup.exe from step (a), you should be able to execute it AsAdmin to run with the exact noted command line with switches to install the driver properly.

If you install the Renesas driver to Windows 8 or higher, it will change the driver for every Renesas  $\mu$ PD720201/2 controller present in your system during the time of installation. If you have multiple USB 3.0 devices (ex – a C13440-20CU ORCA-Flash4.0 (V3)) in the same system connected to independent Renesas  $\mu$ PD720202 controllers than the hardware mentioned above, that hardware may work with better performance if the Microsoft in-box drivers are used. For those other USB 3.0 devices, you can use Device Manager with View devices by connection, then Update Driver to the Renesas controller connected to the other devices manually to switch those controllers back to the Microsoft in-box driver. Device Manager could then look like this example with the Renesas driver for one controller, and the Microsoft in-box driver for the other:

