

## Active Silicon FireBird (CoaXPress)

### DCAM Version

DCAM Module	24.5.4322.6809	(for 64-bit)
DRIVER	8.26.1400.6809	(for 4XCXP6-2PE8)
	8.26.1400.6809	(for 2XCXP6-2PE8)

### Cards

Cards	PC Bus Type	Support OS	Note
<a href="#">AS-FBD-2XCXP6-2PE8</a>	PCI Express x8 Gen2	<b>Windows 10 / 11 (*25)</b> 64-bit (x64)	Half Length
<a href="#">AS-FBD-4XCXP6-2PE8</a>	PCI Express x8 Gen2		Half Length

### Cameras

CoaXPress cameras

Cameras	Nickname	Supported Card	Note
<b>C15440-20UP</b>	ORCA-Fusion BT	<b>AS-FBD-2XCXP6-2PE8</b>	
<b>C14440-20UP</b>	ORCA-Fusion		
<b>C16240-20UP</b>	ORCA-Fire	<b>AS-FBD-4XCXP6-2PE8</b>	
<b>C15550-20UP</b>	ORCA-Quest		
<b>C15550-22UP</b>	ORCA-Quest 2		
<b>C14120-20P</b>	ORCA-Lightning		

### Recommendation

It is highly recommended to set the BIOS to the recommended settings, else you may get sporadic corrupted images transferred to the PC - see Note (\*23). Also, please turn off hibernation, else the frame grabber and camera cannot be recovered properly from waking up or fast startup – see Note (\*26).

## Active Silicon FireBird (CameraLink)

### DCAM Version

DCAM Module	24.5.2322.6809	(for 32-bit)
	24.5.4322.6809	(for 64-bit)
DRIVER	8.13.3.6809	(for FBD; 2PE4)
	8.46.1000.6809	(for FBD; 2xCLD-2PE8)

### Cards

Cards	Camera Link Configuration	PC Bus Type	Support OS	Note
<a href="#">AS-FBD-1XCLD-2PE4L-F</a>	Deca / Dual Base / Full / Medium	PCI Express x4 Gen2	<b>Windows 11 (*25)</b> 64-bit (x64)	Half Length Low Profile PCB - Full Height Bracket
<a href="#">AS-FBD-1XCLD-2PE4L-L</a>	Deca / Dual Base / Full / Medium	PCI Express x4 Gen2	<b>Windows 10 (*25)</b> 32-bit / 64-bit (x64)	Half Length Low Profile PCB - Low Height Bracket
<a href="#">AS-FBD-2XCLD-2PE8</a>	Dual Deca	PCI Express x8 Gen2 (*22)	<b>Windows 10 (*25)</b> 64-bit (x64)	Half Length / Dual Slot

### 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> <b>AS-FBD-1XCLD-2PE4L-L</b> <b>AS-FBD-2XCLD-2PE8</b>	
<b>C10000-C01</b>	TDI Camera	<b>AS-FBD-1XCLD-2PE4L-F</b>	
<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-FBD-1XCLD-2PE4L-F</b>	
<b>C12741-11</b>	InGaAs VGA Camera		
<b>C9750-xxxx(N-C)</b>	X-Ray Line		
<b>C10400-xx</b>			
<b>C12450-27FGC-C</b>			
<b>C14960-xx</b>			
<b>C10650-xx</b>	X-Ray TDI		
<b>C12200-321/461</b>			
<b>C12300-121/321/322/323/461B</b>			
<b>C15400-30-50A</b>			
<b>C10800-xx-C</b>	X-Ray Line Dual Energy		

### Recommendation

It is highly recommended to set the BIOS to the recommended settings, else you may get sporadic corrupted images transferred to the PC - see Note (\*23). Also, please turn off hibernation, else the frame grabber and camera cannot be recovered properly from waking up or fast startup – see Note (\*26).

## USB

### DCAM Version

DCAM Module	24.5.2322.6809	(for 32-bit)
	24.5.4322.6809	(for 64-bit)
DRIVER	1.2.6.6809	(for USB 3.0)
	2.12.2.6809	(for others)

### Cameras

Cameras	Nickname	USB2.0	USB3.0	Support OS	Note	
<b>C16240-20UP</b>	ORCA-Fire		✓	<b>Windows 11 (*25)</b> 64-bit (x64)		
<b>C15550-22UP</b>	ORCA-Quest 2		✓			
<b>C15550-20UP</b>	ORCA-Quest		✓			
<b>C15440-20UP</b>	ORCA-Fusion BT		✓			
<b>C14440-20UP</b>	ORCA-Fusion		✓			
<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>C16741-40U</b>	InGaAs SXGA Camera		✓			
<b>C14041-10U</b>	InGaAs QVGA Camera		✓			
<b>C14041-20U</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		✓			(*24)
<b>C11440-52U30</b>						
<b>C11440-42U</b>	ORCA-Flash4.0 LT		✓			(*24)
<b>C11440-42U30</b>						
<b>C11440-42U40</b>	ORCA-Flash4.0 LT3		✓			
<b>C11440-36U</b>	Global Shutter CMOS Camera		✓		<b>Windows 10 (*25)</b> 32-bit / 64-bit (x64)	
<b>C17290</b>	MAICO		✓			
<b>C15890</b>	MAICO		✓			
<b>C17300-30U</b>	X-Ray		✓			
<b>C17300-40U</b>						
<b>C17300-60U</b>						
<b>C14300</b>	X-Ray		✓			
<b>C11800</b>	X-Ray Line Dual Energy		✓			
<b>C12849-111U</b>	X-Ray CMOS		✓			
<b>C12849-112U</b>						
<b>C12849-101U</b>	X-Ray CMOS		✓		(*24)	
<b>C12849-102U</b>						
<b>C10400</b>	X-Ray	✓			(*27)	
<b>C10650</b>	X-Ray TDI	✓			(*27)	
<b>C16090</b>	InGaAs Area Module		✓			
<b>C16091</b>	InGaAs Line Module		✓			
<b>C9728DK-10</b>	Flat panel sensor	✓			(*27)	
<b>C9730DK-10</b>		✓			(*27)	
<b>C9732DK-11</b>		✓			(*27)	

### Recommendation

It is highly recommended to set the BIOS to the recommended settings, else you may get sporadic corrupted images transferred to the PC. See Note (\*23).

# GigE

## DCAM Version

DCAM Module	24.5.2322.6809	(for 32-bit)
	24.5.4322.6809	(for 64-bit)
DRIVER	6.3.06343.6809	(for fgiport)
	2.2.00.6809	(for fggige2)

## Cameras

Camera or Sensors	Nickname	fgiport	fggige2	Support OS	Note		
<b>C15333-10E</b>	InGaAs Line Camera	✓		<b>Windows 11 (*25)</b> 64-bit (x64)			
<b>C15333-10E04</b>		✓			(*New)		
<b>C12450-27FGC-G</b>	X-Ray Line	✓			<b>Windows 10 (*25)</b> 32-bit / 64-bit (x64)		
<b>C14406DK-81</b>	Flat Panel Sensor	✓					
<b>C14401DK-41</b>		✓					
<b>C12902D-40</b>		✓					
<b>C12903D-40</b>		✓					
<b>C10900D-40</b>		✓					
<b>C10901D-40</b>		✓					
<b>C10500D-43</b>		✓					
<b>C10502D-43</b>		✓					
<b>C12504D-56</b>						✓	
<b>C12505D-56</b>						✓	
<b>C10500D-70</b>						✓	
<b>C10502D-70</b>						✓	
<b>C14400DK-51</b>						✓	
<b>C14409DK-52</b>						✓	
<b>C16401SK-51</b>						✓	

## Recommendations

- It is highly recommended to set the BIOS to the recommended settings, else you may get sporadic corrupted images transferred to the PC. See Note (\*23).
- It is highly recommended to tweak the settings for the Gigabit Network Adapter for which the GigE device is connected. 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:

Property *1	Value
Flow Control	Rx & Tx Enabled
Interrupt Moderation	Disabled
Interrupt Moderation Rate	Adaptive
Jumbo Packet	Maximum Value *2
Maximum Number of RSS Queues	2 Queues
Packet Priority & VLAN	Packet Priority Enabled
Receive Buffers	Maximum Value *2
Speed & Duplex	Auto Negotiation

Notables:

\*1 Because not all of these Properties may be present, set properties that can be set.

\*2 Set the maximum value that can be set, at least Jumbo Packet: 9014 and Receive Buffers: 2048.

# 1394 OHCI

## DCAM Versions

DCAM Module	24.5.2322.6809	(for 32-bit)
	24.5.4322.6809	(for 64-bit)
DRIVER	10.0.0.6809	

## Cameras

Cameras	Nickname	400Mbps Max Card Speed	800Mbps Max Card Speed	Support OS	Note
<b>C9100-24B</b>	ImagEM X2 1K	n/a	<b>BEST</b>	<b>Windows 11 (*25)</b> 64-bit (x64)	
<b>C9100-23B</b>	ImagEM X2	n/a	<b>BEST</b>		
<b>C11090-22B</b>	ORCA-II	n/a	<b>BEST</b>		
<b>C8484-xxG02</b>	ORCA-xxG	good	<b>BEST</b>	<b>Windows 10 (*25)</b> 32-bit / 64-bit (x64)	
<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 set the BIOS to the recommended settings, else you may get sporadic corrupted images transferred to the PC. See Note (\*23).

Notes

\*New: New supported hardware or OS from the 23.12.6736 release.

\*1: This note is deprecated.

\*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.

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\*18: This note is deprecated.

\*19: This note is deprecated.

\*20: This note is deprecated.

\*21: This note is deprecated.

\*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.

\*23 For all PCIe interface options, it is highly recommended to set the BIOS to the recommended settings. For examples,

If you have a DELL Precision 5860, please follow the settings below:

(1) Power

Confirm the settings especially for the following 1 item in the “Settings-Power” options. Click the item in “Settings – Power” to confirm.

Item	Setting name	Setting
Intel Speed Shift Technology	Intel Speed Shift Technology	OFF

(2) Virtualization Support

Confirm the settings especially for the following 1 item in the “Settings-Virtualization Support” options. Click the item in “Settings –Virtualization Support” to confirm.

Item	Setting name	Setting
Intel® Trusted Execution Technology (TXT)	Enable Intel® Trusted Execution Technology (TXT)	ON

For 1394 OHCI cameras

Item	Setting name	Setting
Intel® Trusted Execution Technology (TXT)	Enable Intel® Trusted Execution Technology (TXT)	OFF

(3) Performance

Confirm the settings especially for the following 4 items in the “Settings-Performance” options. Click the item in “Settings – Performance” to confirm.

Items	Setting names	Settings
Intel® Speed Step	Enable Intel® Speed Step Technology	OFF
C-States Control	Enable C-State Control	OFF
Intel® Turbo Boost Technology	Enable Intel® Turbo Boost Technology	ON
Intel® Hyper-Threading Technology	Enable Intel® Hyper-Threading Technology	ON

For 1394 OHCI cameras

Items	Setting names	Settings
Intel® Speed Step	Enable Intel® Speed Step Technology	OFF
C-States Control	Enable C-State Control	OFF
Intel® Turbo Boost Technology	Enable Intel® Turbo Boost Technology	ON
Intel® Hyper-Threading Technology	Enable Intel® Hyper-Threading Technology	OFF

If your settings are different from the settings shown in the above table, change your settings to be the same as the above and click “Apply”.

If you have a DELL Precision 5820, please follow the settings below:

(1) Performance

Confirm the settings especially for the following 4 items in the “Settings-Performance” options. Click the item in “Settings – Performance” to confirm.

Items	Correct settings
Intel® Speed Step™	<input type="checkbox"/> Enable Intel® Speed Step (Unchecked OFF)
C-States	<input type="checkbox"/> C states (Unchecked OFF)
Intel® Turbo Boost™	<input checked="" type="checkbox"/> Enable Intel® Turbo Boost (Checked ON)

If your settings are different from the settings shown in the above table, change your settings to be the same as the above and click “Apply”.

If you have HP Z4 G4, please follow the settings below:

(1) Power Management Options

Confirm the settings especially for the following 5 items in the “Power Management Options”. Click the item



in “Power Management Options” to confirm.

Items	Correct settings
Runtime Power Management	<input type="checkbox"/> (Unchecked OFF)
Hardware P-States	<input type="checkbox"/> (Unchecked OFF)
Energy/Performance Bias Control	OS Control EPB
Idle Power Savings	Normal with Enhanced Halt State disabled
PCI Express Power Management	<input type="checkbox"/> (Unchecked OFF)

(2) Performance Options

Confirm the settings especially for the following 6 items in the “Performance Options”. Click the item in “Performance Options” to confirm.

Items	Correct settings
Turbo Mode	<input checked="" type="checkbox"/> (Checked ON)
Intel® Hyper-Threading Technology	<input checked="" type="checkbox"/> (Checked ON)
Active CPU Cores Per Processor	All
Sub-NUMA Clustering	<input type="checkbox"/> (Unchecked OFF)
Isoc Mode	Disable
Performance Control	Performance Mode

If your settings are different from the settings shown in the above table, change your settings to be the same as the above and save the new settings so they are applied on the next system restart.

If you have a PC other than a DELL Precision 5820 or HP Z4 G4 Workstation, you should use the above settings as a guide to adjust your BIOS settings to have similar effect.

The most important setting is to disable CPU C-state control.

You can refer to this article as reference:

The key point in this article is this statement: [C-State Residencies \(intel.com\)](#)

**As the C-States get deeper, the exit latency duration becomes longer (the time to transition to C0) and the power savings becomes greater.**

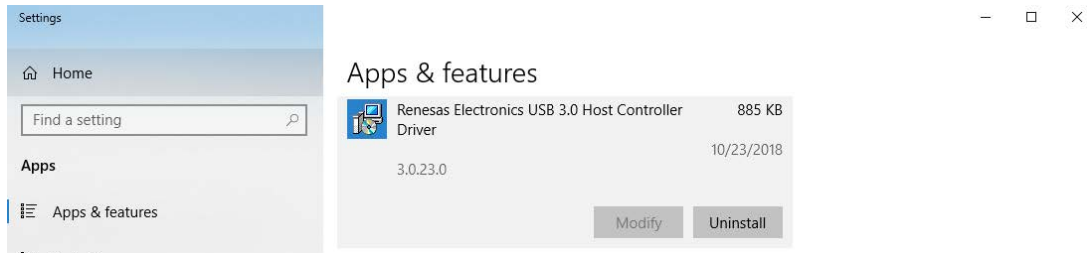
By disabling CPU C-state control in the BIOS, it normally causes the CPU cores in the system to always reside no higher than C1 state which is required for reliable image data transfer.

If your PC has multiple physical CPUs installed, you should also Disable “Non-Uniform Memory Access”.

- \*24 These hardware must be connected to a USB 3.0 compliant bus. Windows 10 and higher ship with in-box USB chi 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 10 or higher** – the Microsoft in-box drivers do not work as well as the Renesas drivers when coupled with these hardware:

[http://www.ioi.com.tw/downloads/cat\\_106/30230\\_dr.zip](http://www.ioi.com.tw/downloads/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"
```

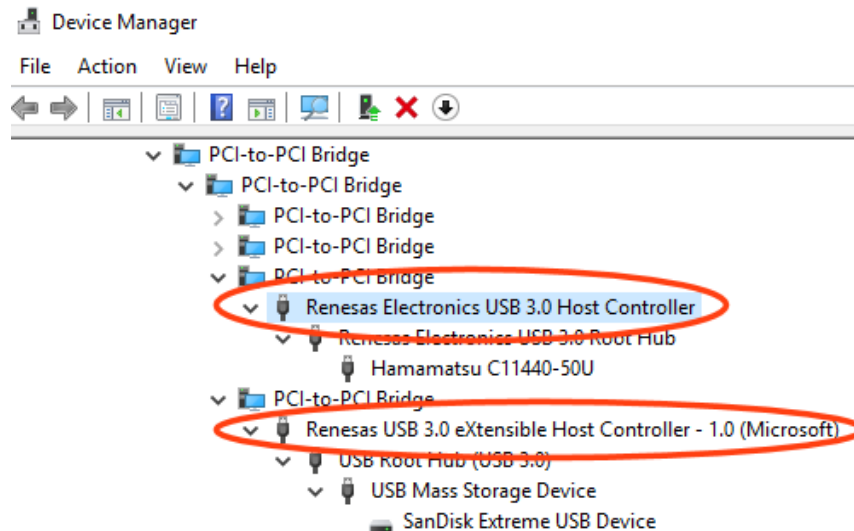
Please use Windows Command Prompt. Do not use PowerShell.

This exact command line can be downloaded from this link:

<https://ftp.hostedftp.com/~hamamatsu/DCAM-API/Renasas/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 10 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:



- \*25 This DCAM-API can install on Windows 10 Version 1803 or higher and Windows 11.  
This DCAM-API is validated on Windows 10 Version 22H2, Windows 11 Version 23H2.
- \*26 For Active Silicon FireBird, please disable / make unavailable hibernation for Windows 10/11. Please follow the instructions here:  
English  
<https://learn.microsoft.com/en-us/troubleshoot/windows-client/deployment/disable-and-re-enable-hibernation>  
Japanese:  
<https://learn.microsoft.com/ja-jp/troubleshoot/windows-client/deployment/disable-and-re-enable-hibernation>
- \*27 When you are receiving this message “A driver can't load on this device (HUSBDCAM.SYS)” using the USB2.0 cameras for Win10/11, you need turning off the **Memory Integrity** in Windows Security with below steps.  
selecting **Start > Settings > Update (Privacy) & Security > Windows Security > Device Security** and then under **Core isolation**, selecting **Core isolation details**. Set **Memory Integrity** setting from ON to **OFF**.  
You'll need to restart your computer for the changes to take effect.