Active Silicon FireBird (CoaXPress)

DCAM Version

DCAM Module	25.4.4322.6953	(for 64-bit)
DRIVER	8.26.1400.6953	(for 4XCXP6-2PE8)
	8.26.1400.6953	(for 2XCXP6-2PE8)

Cards

Cards	PC Bus Type	Support OS	Note
AS-FBD-2XCXP6-2PE8	PCI Express x8 Gen2	**Windows 10 / 11 (*25)** 64-bit (x64)	Half Length
AS-FBD-4XCXP6-2PE8	PCI Express x8 Gen2		Half Length

Cameras

CoaXPress cameras

Cameras	Nickname	Supported Card	Note
C15440-20UP	ORCA-Fusion BT	**AS-FBD-2XCXP6-2PE8**	
C14440-20UP	ORCA-Fusion		
C16240-20UP/30UP	ORCA-Fire	**AS-FBD-4XCXP6-2PE8**	
C15550-20UP	ORCA-Quest		
C15550-22UP	ORCA-Quest 2		
C14120-20P	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	25.4.2322.6953	(for 32-bit)
	25.4.4322.6953	(for 64-bit)
DRIVER	8.13.3.6953	(for FBD; 2PE4L)

Cards

Cards	Camera Link Configuration	PC Bus Type	Support OS	Note
AS-FBD-1XCLD-2PE4L-F	Deca / Dual Base / Full / Medium	PCI Express x4 Gen2	**Windows 11 (*25)** 64-bit (x64) **Windows 10 (*25)** 32-bit / 64-bit (x64)	Half Length Low Profile PCB - Full Height Bracket
AS-FBD-1XCLD-2PE4L-L	Deca / Dual Base / Full / Medium	PCI Express x4 Gen2		Half Length Low Profile PCB - Low Height Bracket

Cameras

Fast speed CameraLink cameras

Cameras	Nickname	Supported Card	Note
C13440-20C(U)	ORCA-Flash4.0 (V3)	**AS-FBD-1XCLD-2PE4L-F** **AS-FBD-1XCLD-2PE4L-L**	
C10000-C01	TDI Camera		
C10000-A01	TDI Board Camera		
C10000-801	TDI Camera		

CameraLink cameras

Cameras	Nickname	Supported Card	Note
C8000-30		**AS-FBD-1XCLD-2PE4L-F** **AS-FBD-1XCLD-2PE4L-L**	
C12741-11	InGaAs VGA Camera		
C9750-xxxx(N-C)	X-Ray Line		
C10400-xx			
C12450-27FGC-C			
C14960-xx			
C10650-xx	X-Ray TDI		
C12200-321/461			
C12300-121/321/322/323/461B			
C15400-30-50A			
C10800-xx-C	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	25.4.2322.6953	(for 32-bit)
	25.4.4322.6953	(for 64-bit)
DRIVER	1.2.6.6953	(for USB 3.0)
	2.12.2.6953	(for others)

Cameras

Cameras	Nickname	USB2.0	USB3.0	Support OS	Note
C17440-20U	ORCA-Halo		✓	**Windows 11 (*25) 64-bit (x64)** **Windows 10 (*25) 32-bit / 64-bit (x64)**	(*New)
C16240-20UP/30UP	ORCA-Fire		✓		
C15550-22UP	ORCA-Quest 2		✓		
C15550-20UP	ORCA-Quest		✓		
C15440-20UP	ORCA-Fusion BT		✓		
C14440-20UP	ORCA-Fusion		✓		
C13440-20CU	ORCA-Flash4.0 (V3)		✓		
C13949-50U	Global Shutter CMOS Board Camera (12M)		✓		
C13770-50U	Global Shutter CMOS Board Camera (5M)		✓		
C13752-50U	Global Shutter CMOS Board Camera (3M)		✓		
C16741-40U	InGaAs SXGA Camera		✓		
C14041-10U	InGaAs QVGA Camera		✓		
C14041-20U	InGaAs QVGA Camera		✓		
C12741-03	InGaAs VGA Camera		✓		
C11440-62U	ORCA-Flash4.0 Board		✓		
C11440-52U	ORCA-Flash4.0 Board		✓		(*24)
C11440-52U30					
C11440-42U	ORCA-Flash4.0 LT		✓		(*24)
C11440-42U30					
C11440-42U40	ORCA-Flash4.0 LT3		✓		
C11440-36U	Global Shutter CMOS Camera		✓		
C17290	MAICO		✓		
C15890	MAICO		✓		
C17300-30U **C17300-40U** **C17300-60U**	X-Ray		✓		
C14300	X-Ray		✓		
C11800	X-Ray Line Dual Energy		✓		
C12849-111U **C12849-112U**	X-Ray CMOS		✓		
C12849-101U **C12849-102U**	X-Ray CMOS		✓		(*24)
C10400	X-Ray	✓			(*27)
C10650	X-Ray TDI	✓			(*27)
C16090	InGaAs Area Module		✓		
C16091	InGaAs Line Module		✓		
C9728DK-10	Flat panel sensor	✓			(*27)
C9730DK-10		✓			(*27)
C9732DK-11		✓			(*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	25.4.2322.6953	(for 32-bit)
	25.4.4322.6953	(for 64-bit)
DRIVER	6.3.06343.6953	(for fgiport)
	2.2.00.6953	(for fggige2)

Cameras

Camera or Sensors	Nickname	fgiport	fggige2	Support OS	Note
C15333-10E	InGaAs Line Camera	✓		**Windows 11 (*25)** 64-bit (x64) **Windows 10 (*25)** 32-bit / 64-bit (x64)	
C15333-10E04		✓			
C12450-27FGC-G	X-Ray Line	✓			
C14406DK-8x	Flat Panel Sensor	✓			
C14401DK-4x		✓			
C14400DK-4x		✓			
C12903D-40		✓			
C12902D-40		✓			
C10901D-40		✓			
C10900D-40		✓			
C10502D-43		✓			
C10500D-43		✓			
C16401SK-51			✓		
C14409DK-5x			✓		
C14408DK-5x			✓		
C14400DK-5x			✓		
C12505D-56			✓		
C12504D-56			✓		
C10502D-70			✓		
C10500D-70			✓		

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	25.4.2322.6953	(for 32-bit)
	25.4.4322.6953	(for 64-bit)
DRIVER	10.0.0.6953	

Cameras

Cameras	Nickname	400Mbps Max Card Speed	**800Mbps Max Card Speed**	Support OS	**Note**
C9100-24B	ImagEM X2 1K	n/a	**BEST**	**Windows 11 (*25)** 64-bit (x64) **Windows 10 (*25)** 32-bit / 64-bit (x64)	
C9100-23B	ImagEM X2	n/a	**BEST**		
C11090-22B	ORCA-II	n/a	**BEST**		
C8484-xxG02	ORCA-xxG	good	**BEST**		
C9664-01G02		good	**BEST**		

Required

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

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).
- Texas Instruments XIO2213B is the best host controller for IEEE-1394 interface card compatibility with newer PC's. See Note (*28).
- Avago Technologies / LSI FW643 is the best PHY/Link IC for an IEEE-1394 interface card, but it may have trouble being recognized in newer PC's.
- PCI Express x1 cards are better than PCI 32-bit/64-bit cards in old desktops.
- ExpressCard is better than CardBus and PCMCIA cards in old notebooks.

Notes

*New: New supported hardware or OS from the 25.2.6927 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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*17: This note is deprecated.
*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”.
f 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™	☐ Enable Intel® Speed Step	(Unchecked OFF)
C-States	☐ C states	(Unchecked OFF)
Intel® Turbo Boost™	☑ 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	☐ (Unchecked OFF)
Hardware P-States	☐ (Unchecked OFF)
Energy/Performance Bias Control	OS Control EPB
Idle Power Savings	Normal with Enhanced Halt State disabled
PCI Express Power Management	☐ (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	☑ (Checked ON)
Intel® Hyper-Threading Technology	☑ (Checked ON)
Active CPU Cores Per Processor	All
Sub-NUMA Clustering	☐ (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.

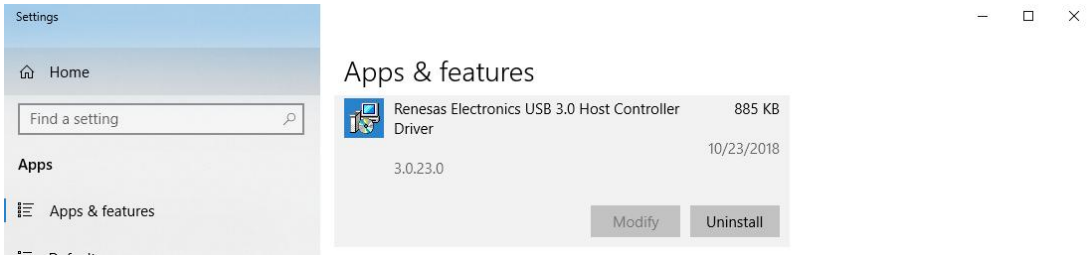
By disabling CPU C-state control in the BIOS, it normally causes the CPU cores in the system to always reside no higher than C1 state which is required for reliable image data transfer.

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 µPD720202 is the most compatible USB host controller chipset with these hardware. When using the Renesas µPD720202 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

(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:

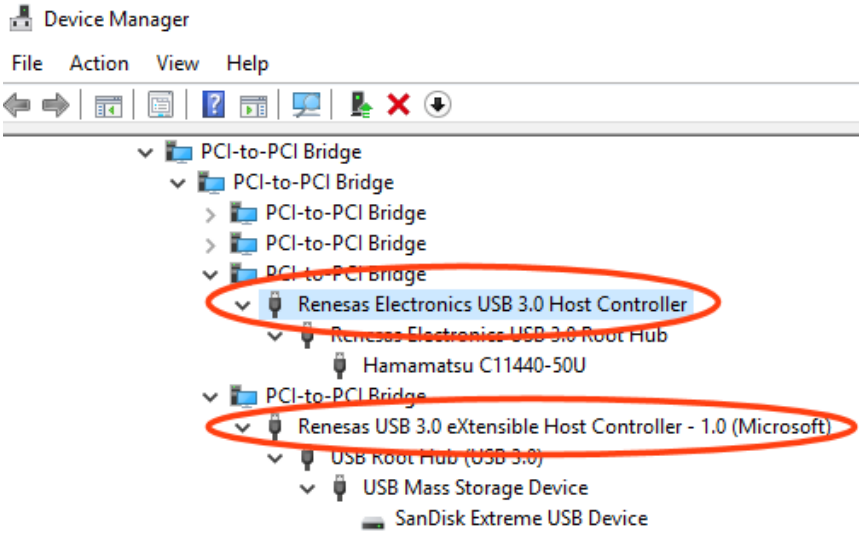
RENESAS-30230-setup.exe /s /v"NO_MONITOR=1 NO_UTILITY=1 SET_SELSUS_MODE1=1 U1U2_DISABLE=1 U1U2_UTL_DISABLE=1 U1U2_PROPERTY_DISABLE=1"

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/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 10 or higher, it will change the driver for every Renesas µPD720201/2 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 µPD720202 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 If you receive this message “A driver can't load on this device (HUSBDCAM.SYS)” using these USB2.0 cameras in Windows 10/11, you need to turn off the **Memory Integrity** setting in Windows Security with these steps:
Start > **Settings** > **Update (Privacy) & Security** > **Windows Security** > **Device Security,** then under **Core isolation**, select **Core isolation details**. Set **Memory Integrity** setting from ON to **OFF**. You'll need to restart your computer for the changes to take effect.

*28 In a Dell Precision 5860 Tower, when testing a Texas Instruments XIO2213B controller, such as an IOI model FWB-PCIE1X11A, it only works properly in SLOT3 PCIe4 x8.