Active Silicon FireBird (CoaXPress)

DCAM Version

DCAM Module	23.2.4322.6583	(for 64-bit)
DRIVER	8.26.1400.6583	(for 4XCXP6-2PE8)
	8.26.1400.6583	(for 2XCXP6-2PE8)

Cards

Cards	PC Bus Type	Support OS	Note
AS-FBD-2XCXP6-2PE8	PCI Express x8 Gen2	**Windows 8.1 / 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	ORCA-Fire	**AS-FBD-4XCXP6-2PE8**	(*New)
C15550-20UP	ORCA-Quest		
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).

Active Silicon FireBird (CameraLink)

DCAM Version

DCAM Module	23.2.2322.6583	(for 32-bit)
	23.2.4322.6583	(for 64-bit)
DRIVER	7.05.140.6583	(for FBD; 1xCLD-2PE8)
	8.13.3.6583	(for FBD; 2PE4)
	8.46.1000.6583	(for FBD; 2xCLD-2PE8)

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)	Half Length Low Profile PCB - Full Height Bracket
AS-FBD-1XCLD-2PE4L-L	Deca / Dual Base / Full / Medium	PCI Express x4 Gen2	**Windows 8.1 / 10 (*25)** 32-bit / 64-bit (x64)	Half Length Low Profile PCB - Low Height Bracket
AS-FBD-1XCLD-2PE8	Deca	PCI Express x8 Gen2 (*22)		Half Length
AS-FBD-2XCLD-2PE8	Dual Deca		**Windows 8.1 / 10 (*25)** 64-bit (x64)	Half Length / Dual Slot

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** AS-FBD-2XCLD-2PE8	
C11440-22C(U)	ORCA-Flash4.0 (V2)	**AS-FBD-1XCLD-2PE8** AS-FBD-2XCLD-2PE8	
C11440-10C	ORCA-Flash2.8	**AS-FBD-1XCLD-2PE4L-F**	(*18)
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**	
C8484-xxC(P)			
C9100-13	ImagEM		
C9100-14	ImagEM 1K		
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).

USB

DCAM Version

DCAM Module	23.2.2322.6583	(for 32-bit)
	23.2.4322.6583	(for 64-bit)
DRIVER	1.2.6.6583	(for USB 3.0)
	2.12.2.6583	(for others)

Cameras

Cameras	Nickname	USB2.0	USB3.0	Support OS	Note
C16240-20UP	ORCA-Fire		✓	**Windows 11 (*25)** 64-bit (x64) **Windows 8.1 / 10 (*25)** 32-bit / 64-bit (x64)	(*New)
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)		✓		
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		✓		
C11440-22CU	ORCA-Flash4.0 (V2)		✓		(*24)
C15890	MAICO		✓		
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	✓			
C10650	X-Ray TDI	✓			
C10990	CCD Board camera	✓			
C16090	InGaAs Area Module		✓		
C16091	InGaAs Line Module		✓		
C9728DK-10	Flat panel sensor	✓			
C9730DK-10		✓			
C9732DK-11		✓			

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	23.2.2322.6583	(for 32-bit)
	23.2.4322.6583	(for 64-bit)
DRIVER	5.1.104642.6583	

Cameras

Camera or Sensors	Nickname	Support OS	Note
C15333-10E	InGaAs Line Camera	**Windows 11 (*25)** 64-bit (x64) **Windows 8.1 / 10 (*25)** 32-bit / 64-bit (x64)	
C12450-27FGC-G	X-Ray Line		
C12902D-40	Flat Panel Sensor		
C12903D-40			
C12504D-56			
C12505D-56			
C10500D-42/43/70			
C10502D-42/43/70			
C10900D-40			
C10901D-40			
C11700DK-40			
C11701DK-40			
C14400DK-41/51			
C14401DK-41			

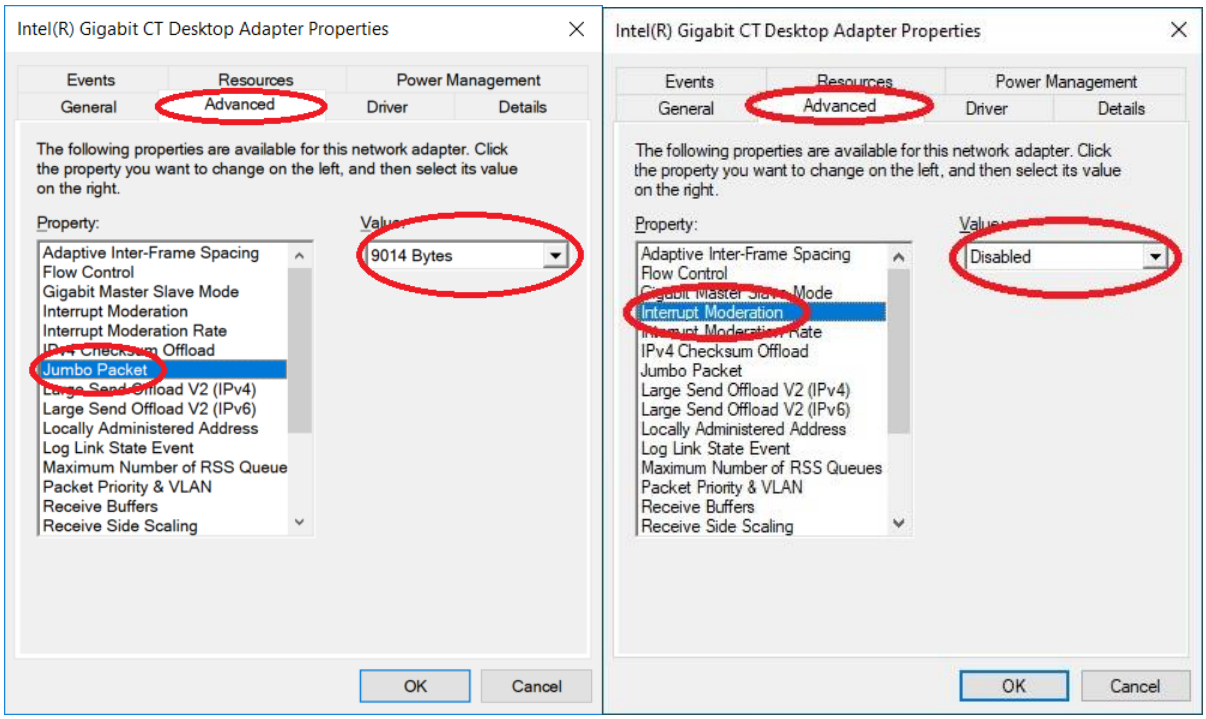
Recommendations

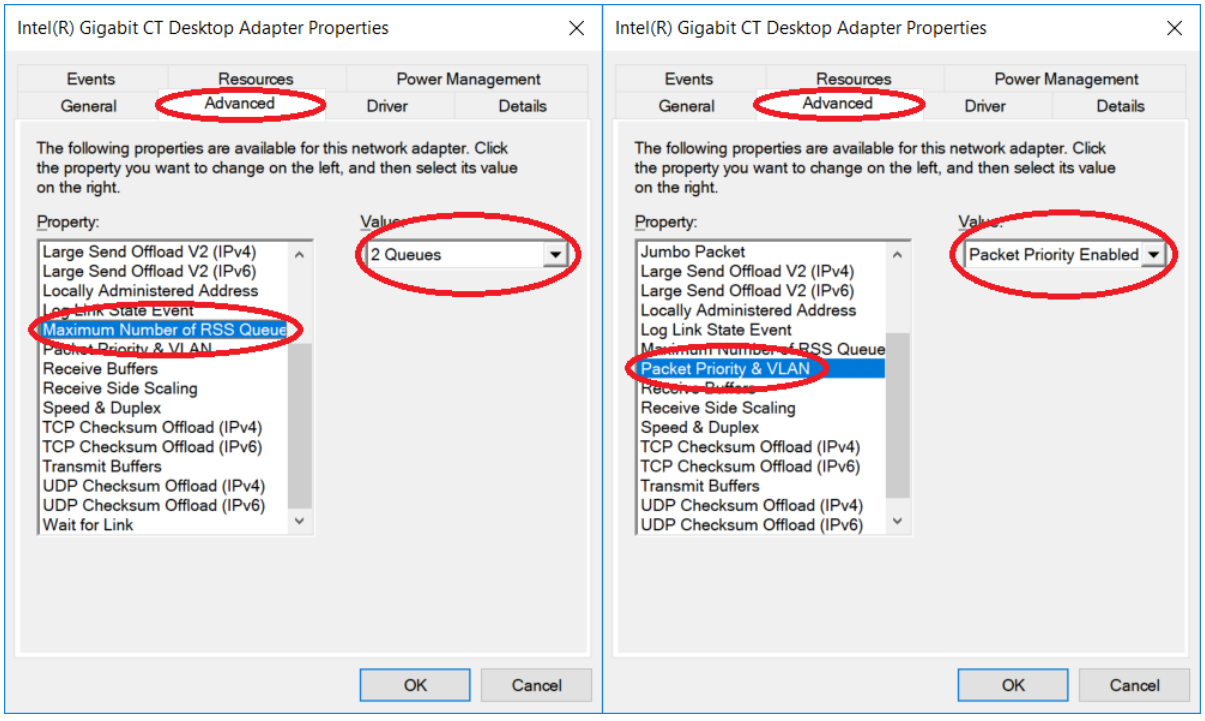
- It is highly recommended to set the BIOS to the recommended settings, else you may get sporadic corrupted images transferred to the PC. See Note (*23).
- It is highly recommended to tweak the settings for the Gigabit Network Adapter for which the GigE device is connected. See the next pages.

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:

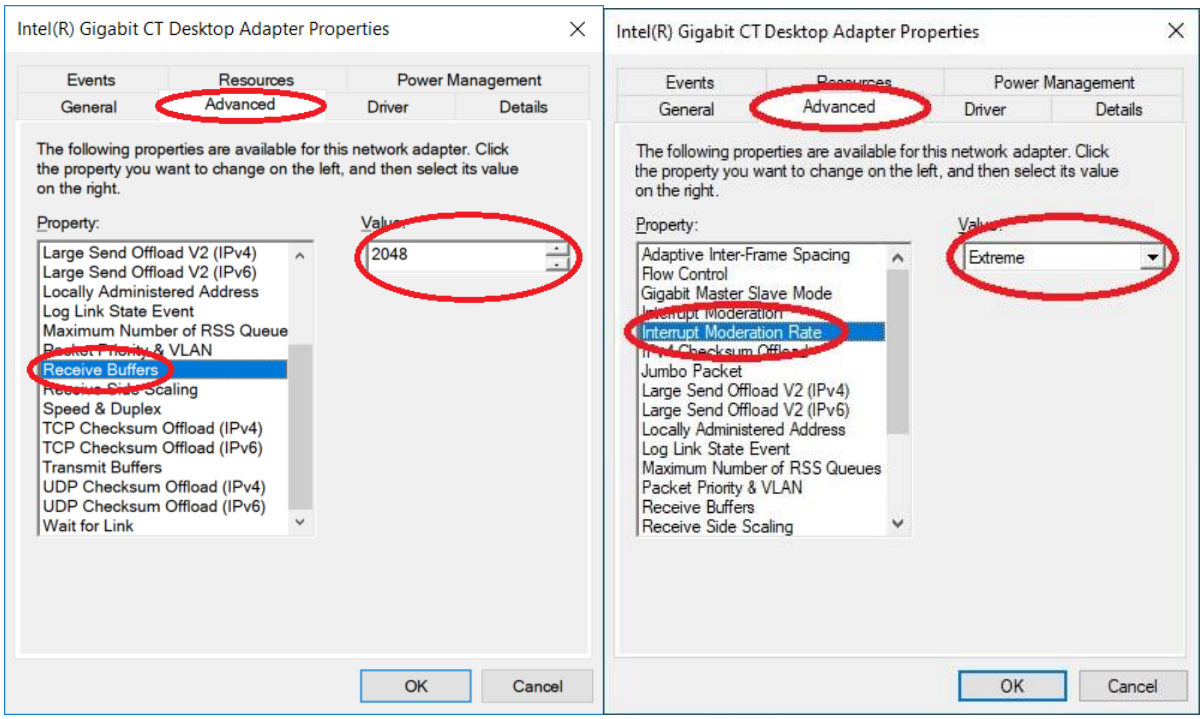




GigE – Cont'd

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:

a. Jumbo Packets has the biggest effect to sustainable FPS and bandwidth. Set this setting to the highest possible by the adapter driver.
b. Receive buffers should be set to maximum allowed by the driver if the setting exists.

1394 OHCI

DCAM Versions

DCAM Module	23.2.2322.6583	(for 32-bit)
	23.2.4322.6583	(for 64-bit)
DRIVER	10.0.0.6583	

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 8.1 / 10 (*25)** 32-bit / 64-bit (x64)	
C11090-22B	ORCA-II	n/a	**BEST**		
C9100-23B	ImagEM X2	n/a	**BEST**		
C10600-10B	ORCA-R2	poor	**BEST**		(*1)
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

- 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 22.9.6509 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: This note is deprecated.
*16: This note is deprecated.
*17: This note is deprecated.

*18: The C11440-10C (ORCA-Flash 2.8) with a FireBird 2PE4L card requires the camera firmware version to be 1.1 or newer.

*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 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.

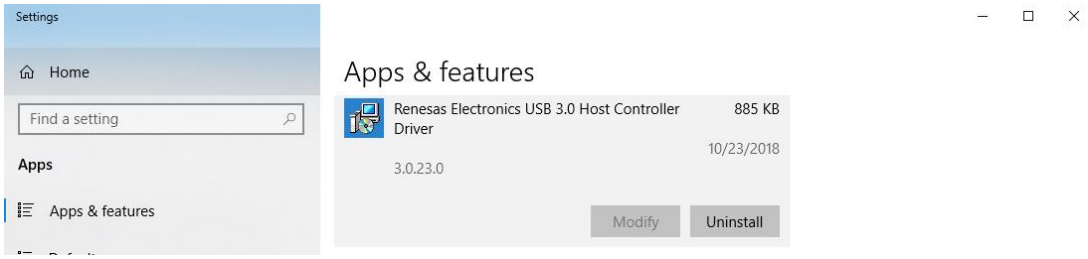
By disabling CPU C-state control in the BIOS, it normally causes the CPU cores in the system to always reside no higher than C1 state which is required for reliable image data transfer.

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 8.1 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 8 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:

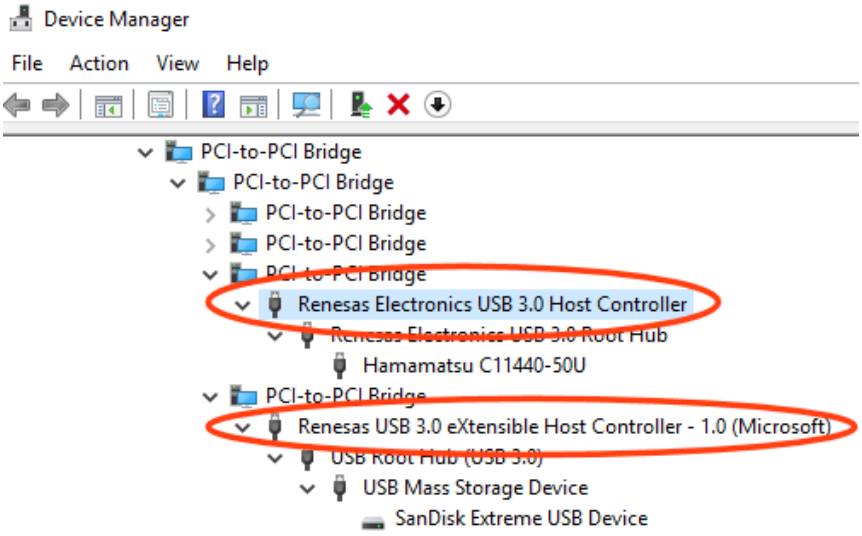
RENESAS-30230-setup.exe /s /v"NO_MONITOR=1 NO_UTILITY=1 SET_SELSUS_MODE1=1 U1U2_DISABLE=1 U1U2_UTL_DISABLE=1 U1U2_PROPERTY_DISABLE=1"

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 8 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 8.1 and Windows 10 Version 1803 or higher and Windows 11. This DCAM-API is validated on Windows 10 Version 22H2, Windows 11 Version 22H2.