

1394 OHCI

DCAM Versions

DCAM Module
DRIVER4.0.322.4274 / 4.0.642.4274
9.27.20.4274

(for 32-bit) / (for 64-bit)

Cameras

Cameras	Nickname	400Mbps	800Mbps	Support OS	Note
C10600-10B	ORCA-R2	poor	BEST		(*1)
C11254-10B	ORCA-D2	poor	BEST		(*1)
C4742-80-12AG	ORCA-AG	good	BEST		(*2)(*Disc)
C4742-95-12ERG	ORCA-ERG	good	BEST		(*2)(*Disc)
C4742-95-12NRG	ORCA-NRG	good	BEST		(*2)(*Disc)
C4742-95-12G04 C4742-96-12G04	ORCA-285G	good	BEST		(*2)(*3) (*Disc)
C4742-98-ERG(2)	ORCA-II ERG	good	BEST		(*Disc)
C4742-98-EWG(2)	ORCA-II EWG	good	BEST		(*Disc)
C4742-98-2xKAG(2) C4742-98-2xKWG(2)	ORCA-II BTG 1024	good	BEST		
C4742-98-2xLAG(2) C4742-98-2xLWG(2)	ORCA-II BTG 512	good	BEST		
C8484-03G		good	BEST		(*2)(*4) (*Disc)
C8484-05G		good	BEST		(*2)(*4) (*Disc)
C8484-xxG01		good	BEST		(*2) (*Disc)
C8484-xxG02		good	BEST		(*2)
C9260-903		good	BEST		(*Disc)
C9440-05G		good	BEST		(*4)(*Disc)
C9440-05G01		good	BEST		(*4)(*Disc)
C9440-05G02		good	BEST		(*4)
C9664-01G		good	BEST		(*4)(*Disc)
C9664-01G01		good	BEST		(*4)(*Disc)
C9664-01G02		good	BEST		(*4)
DFG/1394-1e		good	BEST		(*5)(*13) (*Disc)
DFW-SX900		good	BEST	Windows 7 32-bit (*20)(*21) Windows Vista 32-bit Windows XP 32-bit SP3	(*6)(*Disc)

Required

The IEEE-1394 card must have OHCI compatibility with Microsoft's Inbox Drivers.
Windows XP requires Service Pack 3.

Recommend

- 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.
- 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).

Active Silicon Phoenix and FireBird (CameraLink)**DCAM Version**

DCAM Module	4.0.322.4274 / 4.0.642.4274	(for 32-bit) / (for 64-bit)
DRIVER	5.58.160.4274	(for PHX-PCI and PHX-D24/48-PE1)
	6.58.00.4274	(for PHX-D64CL-PE4(H))
	6.58.00.4274	(for FBD-1XCLD-2PE8)

Cards

Cards	Camera Link Configuration	PC Bus Type	Support OS	Note
AS-PHX-D24CL-PCI32-B (*16)	Base	32-bit PCI	Windows 7 32-bit Windows Vista 32-bit Windows XP 32-bit	Half Length
AS-PHX-D48CL-PCI64-B (*16)	Base	64-bit PCI 3.3V		(*Disc) Full Length
AS-PHX-D48CL-PCI64U-B (*16)	Medium Dual Base	32-bit/64-bit PCI / PCI-X		
AS-PHX-D24CL-PE1	Base	PCI Express x1 (*17)	Windows 7 32-bit 64-bit (x64) Windows Vista 32-bit 64-bit (x64)	Half Length
AS-PHX-D48CL-PE1	Base Medium Dual Base			
AS-PHX-D64CL-PE4	Base Medium Full	PCI Express x4 (*15)(*17)	Windows XP 32-bit	(*Disc) Full Length
AS-PHX-D64CL-PE4H				Half Length
AS-FBD-1XCLD-2PE8	Deca	PCI Express x8 Gen2 (*15)(*22)	Windows 7 32-bit 64-bit (x64) Windows Vista 32-bit 64-bit (x64)	Half Length

Active Silicon Phoenix and FireBird (CameraLink) – Cont'd

Cameras

Fast speed CameraLink cameras

Cameras	Nickname	Supported Card	Note
C11440-22C(U)	ORCA-Flash4.0 (V2)	AS-FBD-1XCLD-2PE8	V2 = (*New)
C11440-10C	ORCA-Flash2.8	AS-PHX-D24CL-PE1	(*18)
C10000-201	TDI Board Camera	AS-PHX-D48CL-PE1 AS-PHX-D48CL-PCI64-B (*Disc)	
C10000-401	TDI Camera	AS-PHX-D24CL-PE1 AS-PHX-D48CL-PCI64-B (*Disc)	
C10000-701A	TDI Camera	AS-PHX-D64CL-PE4(H)	

CameraLink cameras

Cameras	Nickname	Supported Card	Note
C8000-30			
C8484-xxC(P)			
C8800-xxC			
C9100-01/11/12			
C9100-02/03			
C9100-13	ImagEM	AS-PHX-D24CL-PE1 AS-PHX-D48CL-PE1 AS-PHX-D24CL-PCI32-B	(*Disc)
C9100-14	ImagEM 1K	AS-PHX-D48CL-PCI64-B (*Disc)	
C9300-024/124/201/221		AS-PHX-D48CL-PCI64U-B (*Disc)	(*7)
C9750-xx			
C10400-xx	X-Ray Line		
C10650-xx	X-Ray TDI		

Required

64-bit (x64) Editions of Windows need PCI Express boards.

Recommend

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 4.0.322.4274 / 4.0.642.4274 (for 32-bit) / (for 64-bit)
 DRIVER 5.58.160.4274

Cards

Cards	PC Bus Type	Support OS	Note
AS-PHX-D36-PCI32-B (*16)	32-bit PCI	Windows 7 32-bit Windows Vista 32-bit Windows XP 32-bit	Half Length
AS-PHX-D36-PCI64-B (*16)	64-bit PCI 3.3V		(*Disc)
AS-PHX-D36-PCI64U-B (*16)	32-bit/64-bit PCI / PCI-X		Full Length
AS-PHX-D36-PE1	PCI Express x1 (*17)	Windows 7 32-bit 64-bit (x64) Windows Vista 32-bit 64-bit (x64) Windows XP 32-bit	Half Length

Cameras

LVDS Color cameras

Cameras	Nickname	Supported Cards	Note
C7780-xx	ORCA-3CCD	AS-PHX-D36-PE1 AS-PHX-D36-PCI64-B (*Disc) AS-PHX-D36-PCI64U-B (*Disc)	(*9)

LVDS/RS-422 cameras

Cameras	Nickname	Supported Cards	Note	
C4742-95-12NR(B)	ORCA-NR or ORCA-100	AS-PHX-D36-PE1 AS-PHX-D36-PCI32-B AS-PHX-D36-PCI64-B (*Disc) AS-PHX-D36-PCI64U-B (*Disc)	(*Disc)	
C4742-95-12ER	ORCA-ER		(*Disc)	
C4742-95-12HR	ORCA-HR		(*8)	
C4742-98-2xNR	ORCA-II		(*Disc)	
C4742-98-2xER	ORCA-II ER			
C4742-98-2xHR	ORCA-II HR			
C4742-98-2xKA / -2xKW	ORCA-II BT 1024			
C4742-98-2xLA / -2xLW	ORCA-II BT 512			
C4880-06/07/16/17				(*Disc)
C4880-80 / C6790-8x				(*Disc)
C7190-1x				(*Disc)
C7190-2x/4x/5x				(*8) (*Disc)
C8000-10 / -20				(*Disc)
C7390-xx	X-Ray Line			(*Disc)
C8133-xx			(*Disc)	
C8750-xx			(*Disc)	
C9133-xx			(*Disc)	
C9750-xx				
C10400-xx				
C10800-xx	X-Ray Line Dual Energy			
C4880-50		AS-PHX-D36-PCI64U-B (*Disc)	(*Disc)	

Required

64-bit (x64) Editions of Windows need PCI Express boards.

DALSA Xcelera (CameraLink)

DCAM Version

DCAM Module 4.0.322.4274 / 4.0.642.4274 (for 32-bit) / (for 64-bit)
 DRIVER 1.30.1468.4274

Cards

Cards	PC Bus Type	Support OS	Note
Xcelera-CL PX4 DUAL	PCI Express x4 (*15)	Windows 7 32-bit 64-bit (x64) (*14)	
Xcelera-CL PX4 FULL		Windows Vista 32-bit 64-bit (x64) (*14) Windows XP 32-bit	

Cameras

Cameras	Nickname	Supported Cards	Note
C9100-13	ImagEM	Xcelera-CL PX4 DUAL Xcelera-CL PX4 FULL	
C10000-401	TDI Camera		
C11440-10C	ORCA-Flash 2.8		
C10000-201	TDI Board Camera		(*25)
C10000-701B	TDI Board Camera		(*25)
C10000-701A	TDI Board Camera	Xcelera-CL PX4 FULL	

Required

The PC Motherboard has to have a free PCI Express x4, x8 or x16 slot.

If the slot is x8 or x16, the slot has to support also PCI Express x4. Some motherboards/slots do not. (*15)

Specification of our test PC

CPU: Pentium 4/3GHz with Hyper Threading

RAM: 3GB

OS: Windows 7

DALSA Xcelera (CameraLink) – Cont'd

Important Note

Older motherboards and/or some PCI Express 2.0 slots (Ex. - Dell T5400/T7400 x16 slots) may have BIOS incompatibilities with the Xcelera card. This usually presents itself where the PCIe slot in which the board is installed cannot initialize and a BIOS error message is shown, or the PC will not boot at all. In either case, the cause can be related to unexpected PCIe bus reset negotiations with the BIOS/motherboard and the Xcelera. A possible method to circumvent this issue is to set DIPSW3-2 to ON (right position) before installing the card into the PC. This causes the Xcelera to ignore PCIe reset requests which normally allows the card/PC to boot properly. The side effect is when the board is configured in this manner, if the board has never been initialized with the current drivers/firmware yet, a firmware flash may be attempted silently to the board after Windows startup or just after the first PnP device detection sequence. After flashing is made, the board may still be inoperable – you can know it if your DCAM-API host application fails to initialize and detect your camera after approximately 5 minutes after startup. If this should happen, a manual Windows restart should correct the issue, and the board will continue to operate properly in the installed slot. The DIPSW3 bank is located on the board at the red circled location:



USB Camera

DCAM Version

DCAM Module	4.0.322.4274 / 4.0.642.4274	(for 32-bit) / (for 64-bit)
DRIVER	4.0.327.4274	(for C11440-22CU 32-bit)
	4.0.647.4274	(for C11440-22CU 64-bit)
	1.2.02045.4274	(for C10633)
	2.12.2.4274	(for others)

Cameras

Cameras	Nickname	Support OS	Note
C11440-22CU	ORCA-Flash4.0 (V2)	Windows 7 32-bit 64-bit (x64) Windows Vista 32-bit 64-bit (x64)	(*24) V2 = (*New)
C10633-13/23	InGaAs camera	Windows 7 32-bit 64-bit (x64) Windows Vista 32-bit 64-bit (x64) Windows XP 32-bit	(*19)
C9260-901/902/904/905	Board camera	Windows 7 32-bit 64-bit (x64) Windows Vista 32-bit 64-bit (x64) Windows XP 32-bit	(*Disc)
C9260-930	Line binning and TDI		(*Disc)
C9728DK-10	Flat panel		
C9730DK-10/11	Flat panel		
C9730DT-11	Flat panel		
C9732DK	Flat panel		
C9732DT	Flat panel		
C10400	X-Ray		
C10650	X-Ray TDI		
C10990	Board camera		
C11013	Board camera		

Coreco PC-Dig (LVDS/RS422) and PC-CamLink (CameraLink)

DCAM Version

DCAM Module	4.0.322.4274	
DRIVER	5.8.30.4274	(for Windows XP)
	5.10.149.4274	(for Windows Vista)

Cards

Cards	Camera Interface	PC Bus Type	Support OS	Note
PC-Dig	LVDS/RS422	32-bit PCI	Windows Vista 32-bit Windows XP 32-bit	(*Disc)
PC-CamLink	CameraLink Base			

Cameras

CameraLink cameras

Cameras	Nickname	Supported Card	Note	
C8484-xxC(P)		PC-CamLink (*Disc)		
C8800-xxC				
C9100-01/11/12				(*Disc)
C9100-02/03				(*10)
C9100-13	ImagEM			
C9100-14	ImagEM 1K			
C9300-024/124/201/221				(*11)
C9750-xx				
C10400-xx	X-Ray Line			
C10650-xx	X-Ray TDI			

LVDS Color cameras

Cameras	Nickname	Supported Cards	Note
C7780-xx	ORCA-3CCD	PC-Dig (*Disc)	(*12)

LVDS/RS-422 cameras

Cameras	Nickname	Supported Cards	Note	
C4742-95-12NR(B)	ORCA-NR or ORCA-100	PC-Dig (*Disc)	(*Disc)	
C4742-95-12ER	ORCA-ER		(*Disc)	
C4742-95-12HR	ORCA-HR			
C4742-98-2xNR	ORCA-II		(*Disc)	
C4742-98-2xER	ORCA-II ER			
C4742-98-2xHR	ORCA-II HR			
C4742-98-2xKA / -2xKW	ORCA-II BT 1024			
C4742-98-2xLA / -2xLW	ORCA-II BT 512			
C4880-06/07/16/17/50				(*Disc)
C4880-80 / C6790-8x				(*Disc)
C7190-1x				(*Disc)
C7190-2x/4x/5x				(*Disc)
C8000-10 / -20				(*Disc)
C7390-xx	X-Ray Line			(*Disc)
C8133-xx			(*Disc)	
C8750-xx			(*Disc)	
C9133-xx			(*Disc)	
C9750-xx				
C10400-xx				
C10800-xx	X-Ray Line Dual Energy			

Notes

- *New: New supported hardware or OS from December 2012 release.
- *Disc: Discontinued. There is no more new production so stock may be depleted or very minimal. Hardware/firmware support is finalized. Software support for hardware is for backward compatibility.
- *1: C10600-10B (ORCA-R2) and C11254-10B(ORCA-D2) have limitations for full performance with IEEE-1394 400Mbps port.
- *2: CRi LCD filter driving with serial port box is supported.
- *3: CRi LCD filter driving is supported.
- *4: These cameras should not be connected to Mac's on-board Firewire port because it supplies about 30V which may damage the camera. Please use a PCI Firewire Adapter card.
- *5: The Imaging Source® DFG/1394-1e Video-to-FireWire Converter.
- *6: Only SONY DFW-SX900 cameras delivered from Hamamatsu are supported by DCAM-API.
- *7: For dual tap, maximum performance mode, it is required to use

AS-PHX-D48CL-PCI64(-B)
AS-PHX-D48CL-PE1.
AS-PHX-D24CL-PE1.

- *8: Special Digital I/F cable for Phoenix is required:

(a) HPK cable part number: A9608-95 (Digital I/F cable for Phoenix/C7190-20)

or

(b) For C7190-2x/4x/5x, HC/ASL cable part number:

WB3021 (CABLE FOR DIG-36-PE1/DIG-36 PHOENIX BOARD AND C7190-2x/4x/5x, ORCA-100/II/ER)

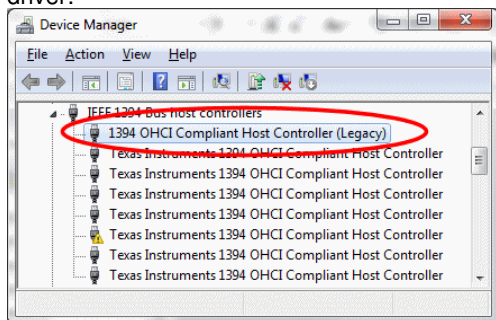
or

(c) For C4742-95-12HR, HC/ASL cable part number:

WB3021-HR (CABLE FOR DIG-36-PE1/DIG-36 PHOENIX BOARD AND ORCA-HR)

with Phoenix Serial Port jumpers set for RS232 for MacOSX. For Windows, these parts and setting are recommended.

- *9: C7780 fully works with AS-PHX-D36-PCI64(-B) / -PE1 only
- *10: For Windows Vista, 16x16 binning and small regions are not supported.
- *11: For dual tap, maximum performance is not guaranteed.
- *12: C7780 has limitation for full performance with Coreco PC-DIG.
- *13: For Windows 7 only, the DFG/1394-1e Video-to-FireWire Converter requires a manual downgrade of the IEEE 1394 Bus Controller for which it is connected to the 1394 OHCI Compliant Host Controller (Legacy) driver:



See this video how to downgrade the driver: <http://www.youtube.com/watch?v=s4JfbDW6AtI>

After the driver is downgraded, you should run any DCAM-API compliant host application once as an administrator or reinstall the driver set so that the Legacy driver is properly configured for maximum speed.

Notes – Cont'd

- *14: Dalsa does not support Windows 32-bit support on any Windows 64-bit (x64) Operating System (WoW64 - Windows-on-Windows 64-bit) with their hardware and drivers. Only native 64-bit (x64) applications can work with Dalsa in Windows 64-bit (x64) operating systems.
- *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 T7600 and T5600

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.)

>Workstation T7400

1. In the case of a single video card (using one x16 slot), the remaining x16 slot may be used for PCI-E adapters other than graphics (downward compatible with x16, x8, x4, x2, x1 adapters).
2. If using PCI or PCI-X video card, the other x16 slot also is downward compatible with x16, x8, x4, x2, x1 adapters
3. For slot 1 (x8), it is downward compatible with x4, x2, x1 adapters, but the max speed is only x4, not x8.

>Workstation T5400

The same as T7400

>Workstation T3400

1. In the case of a single video card (using one x16 slot), the remaining x16 slot may be used for PCI-E adapters other than graphics, but only is downward compatible with x1 adapters.
2. If using PCI video card, the other x16 slot also is downward compatible only with x16, x1 adapters
3. For slot 3 (x8), it is downward compatible with x8, x4, x2, x1 adapters, but the max speed is only x4, not x8.

Notes – Cont'd

>Workstation 690

1. If using PCI or PCI-X video card, the other x16 slot (slot 2) also is downward compatible with x16, x8, x4, x2, and x1 adapters
2. For the slot 1 (x8), it is downward compatible with x8, x4, x2, x1 adapters, but the max speed is only x4, not x8.
3. For the slot 3 (x8), it is downward compatible with x8, x4, x2, x1 adapters, but the max speed is only x4, not x8.
4. For the slot 7 (x8), it is downward compatible with x8, x4, x2, x1 adapters, but the max speed is only x4, not x8.

>Workstation 490

1. If using PCI or PCI-X video card, the other x16 slot (slot 2) also is downward compatible with x16, x8, x4, x2, x1 adapters
2. For the slot 1 (x8), it is downward compatible with x8, x4, x2, x1 adapters, but the max speed is only x4, not x8.
3. For the slot 3 (x8), it is downward compatible with x8, x4, x2, x1 adapters, but the max speed is only x4, not x8.

>Workstation 390

1. If using PCI or PCI-X video card, the other x16 slot (slot 2) also is downward compatible with x16, x1 adapters
2. For the slot 1, only can use x1 adapter.
3. For the slot 4 (x8), it is downward compatible with x8, x4, x2, x1 adapters, but the max speed is only x4, not x8.

>Workstation 670

1. If using PCI or PCI-X video card, the other x16 slot (slot 1) also is downward compatible with x16, x1 adapters
2. For the slot 3 (x8), it is downward compatible with x8, x4, x2, x1 adapters, but the max speed is only x4, not x8.

>Workstation 470

The same as 670.

>Workstation 370

1. If using PCI video card, the other x16 slot (slot 1) also is downward compatible with x16, x1 adapters
2. For the slot 5, only can use x1 adapter.

>Optiplex 980/580

1. There are 2 PCIe x16 slots. One is wired x16 and another is wired x4. On the x16 wired slot, it works for x16/x1. On the x4 wired slot, it works for x4/x1.
2. For others configs (e.g. x8 device on x16 wired slot.....), these are not confirmed to work because Dell didn't qualify any in development or ship such devices with these models.

>Optiplex 960/780/760/740/755/GX620/GX520/GX280

Assume all PCIe slots work with the lane speed as the physical slot length and x1 only.

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

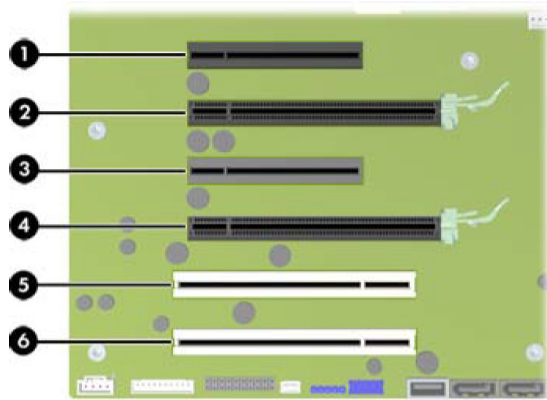
Expansion card slot identification

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 (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.

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 ¹	PCIe2 x8(4) open-ended	x1, x4, x8, x16	x1, x4	25W
2 ¹	PCIe2 x16 ²	x1, x4, x8, x16	x1, x4, x8, x16	75W
3	PCIe x8(4) open-ended	x1, x4, x8, x16	x1, x4	25W
4 ¹	PCIe2 x16(8)	x1, x4, x8, x16	x1, x4, x8	25W
5 ¹	PCIe2 x16 ⁴	x1, x4, x8, x16	x1, x4, x8, x16	75W
7	PCIe2 x16(8)	x1, x4, x8, x16	x1, x4, x8	25W

¹ PCIe GEN2 slot.

² Primary graphics slot

⁴ 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 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.)

DCAM-API for Windows (April 2013) Compatibility Note

- *16: AS-PHX-D24CL-PCI32, AS-PHX-D48CL-PCI64(U), and AS-PHX-D36-PCI64(U) model types are no longer supported. They may be able to be converted/upgraded to **AS-PHX-D24CL-PCI32-B**, AS-PHX-D48CL-PCI64(U)-**B**, and AS-PHX-D36-PCI64U-**B** respectively. Consult with Hamamatsu or Active Silicon for details. Please remember that all of these models are not supported with Windows XP/Vista/7 64-bit and DCAM-API, so if your plan is to move to a 64-bit operating system eventually, you might want to consider purchasing a PE1 compatible board instead.
- *17: PCIe Phoenix compatibility – All Phoenix PCIe boards use PCI Device Class Code 0x04 and Sub-Class Code 0x00. For reference, see:

http://www.acm.uiuc.edu/sigops/roll_your_own/7.c.1.html

The BIOS of some Dell Optiplex model PC's may detect this device as a Standard Display Controller incorrectly, then try to initialize the board as such, fail, and the board becomes unusable. Dell has reviewed these Optiplex model series for this problem and concluded the following:

For these platforms, we've removed the code which recognizes the card which class/sub-class code is 0400h as a Video card in these BIOS releases:

Optiplex 980 (BIOS A02)
Optiplex 960 (BIOS A05)
Optiplex 780 (BIOS A03)
Optiplex 760 (BIOS A05)

These platforms do not have this limitation:

Optiplex 740
Optiplex 580

These platforms still have this limitation. They are EOL'ed (discontinued), and no customer escalated this issue during their life cycle, so the problem will not be improved:

Optiplex 755
Optiplex GX620
Optiplex GX520
Optiplex GX280

Therefore, if you are using these boards with Dell Optiplex, insure you have at least the supported BIOS versions listed. If your model was EOL'ed and on the incompatibility list above, you will not be able to use any Phoenix PCIe boards in that machine.

DCAM-API for Windows (April 2013) Compatibility Note

*18: The C11440-10C (ORCA-Flash 2.8) with a Phoenix PE1 card requires the camera firmware version to be 1.1 or newer. Also, this combination will use more CPU stress during image acquisition than a PCI Express x4 solution (for example – Phoenix PE4 and Xcelera-CL PX4).

*19: The C10633 (InGaAS) cameras are only supported with Windows 32-bit support on any Windows 64-bit (x64) Operating System (WoW64 -Windows-on-Windows 64-bit).

*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>

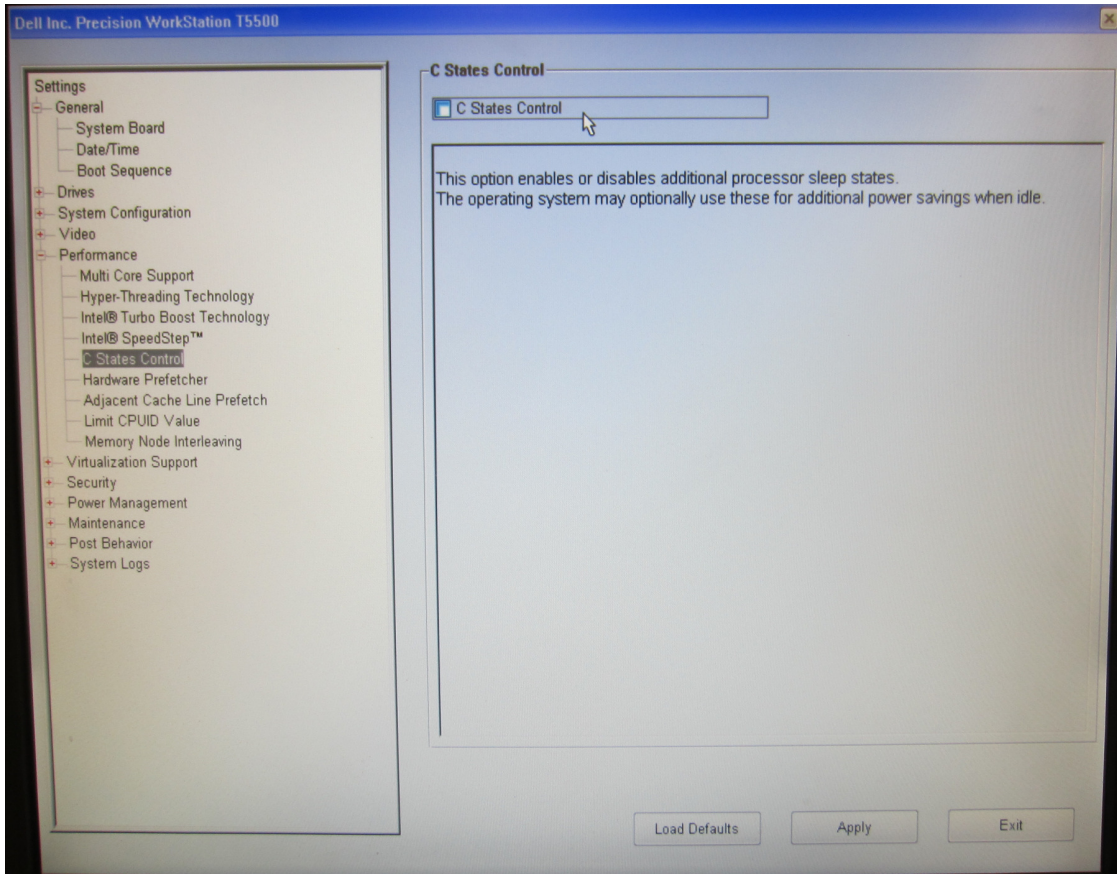
If you configured your IEEE1394 Bus controller driver for Legacy per a previous Compatibility Note recommendation, you should revert your IEEE 1394 Bus Controller driver away from Legacy and back to the Standard driver to use this hotfix and be the most stable. The Legacy driver is provided in Windows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

*22 The FireBird 2PE8 cards will currently only operate properly 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. If you have a Dell T5600, we recommend to install the card to slot 2 or slot 4 (the x16 graphics card capable slots) for maximum performance. If you have a Dell T7600, we recommend to install the card into any of the x16 wired / capable slots.

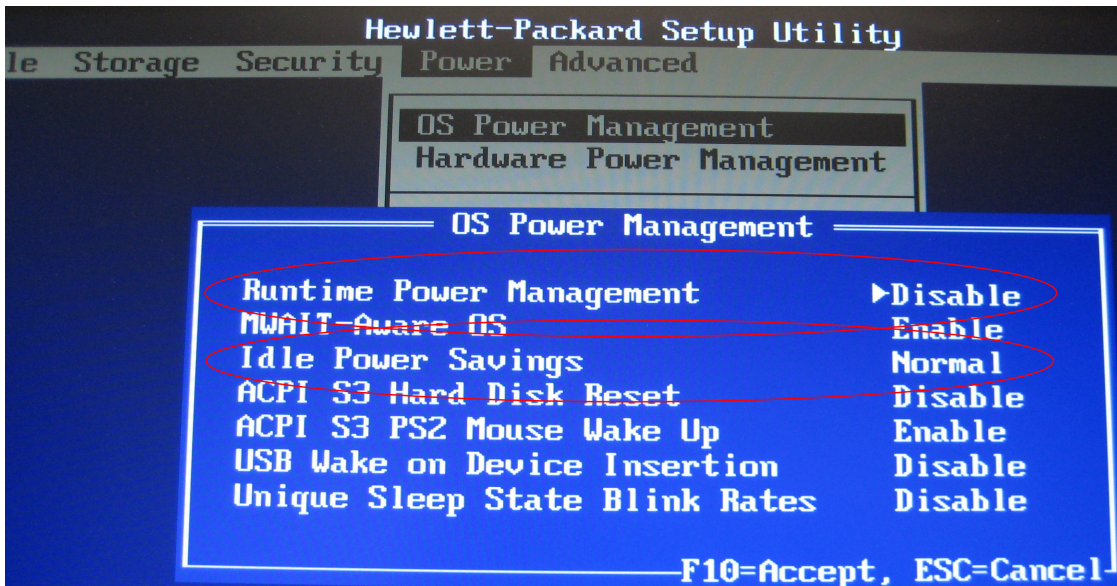
*23 For all PCIe interface options, it is highly recommended to disable C-state processor control in your PC's BIOS. Most PC manufacturers (such as Dell and HP) ship with C-state processor control enabled from the factory. When this is enabled, the processor may drop in and out of S0 maximum power state – 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.

DCAM-API for Windows (April 2013) Compatibility Note

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">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.Idle Power Savings—Extended/Normal. Allows certain operating systems to decrease the processors power consumption when the processor is idle.

HAMAMATSU

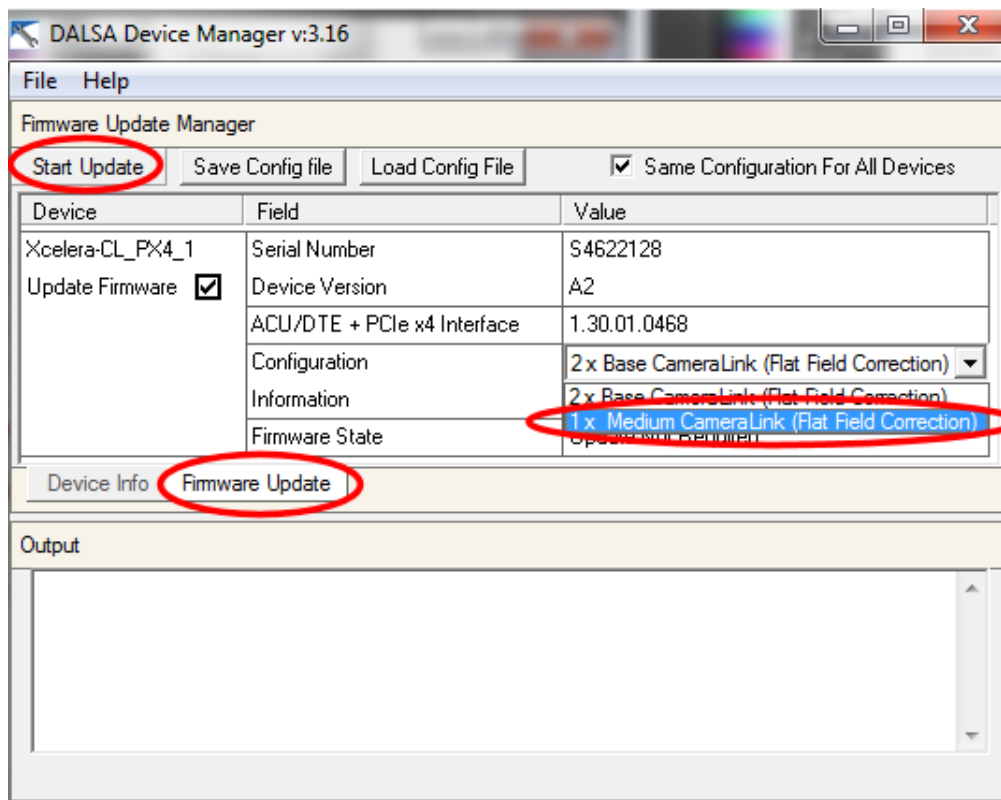
DCAM-API for Windows (April 2013) Compatibility Note

- *24 For C11440-22CU and USB, it must be connected to a USB 3.0 compliant bus, 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), and the USB 3.0 chipset controller must be installed/operating on a PCI Express / ExpressCard **Gen2** (5GT/s) capable slot / bus.
- *25 These cameras are MEDIUM CameraLink Specification. Dalsa/Xcelera requires you to manually program its firmware to MEDIUM, as well as manually configure a configuration file to notify the software/drivers that it will be using MEDIUM configuration. To do this, follow these steps after fully installing the DCAM-API Sopera Drivers and Xcelera frame grabber into the system and rebooting if necessary – the drivers for the board need to be running to use the tools.

1. Run this command line as administrator:

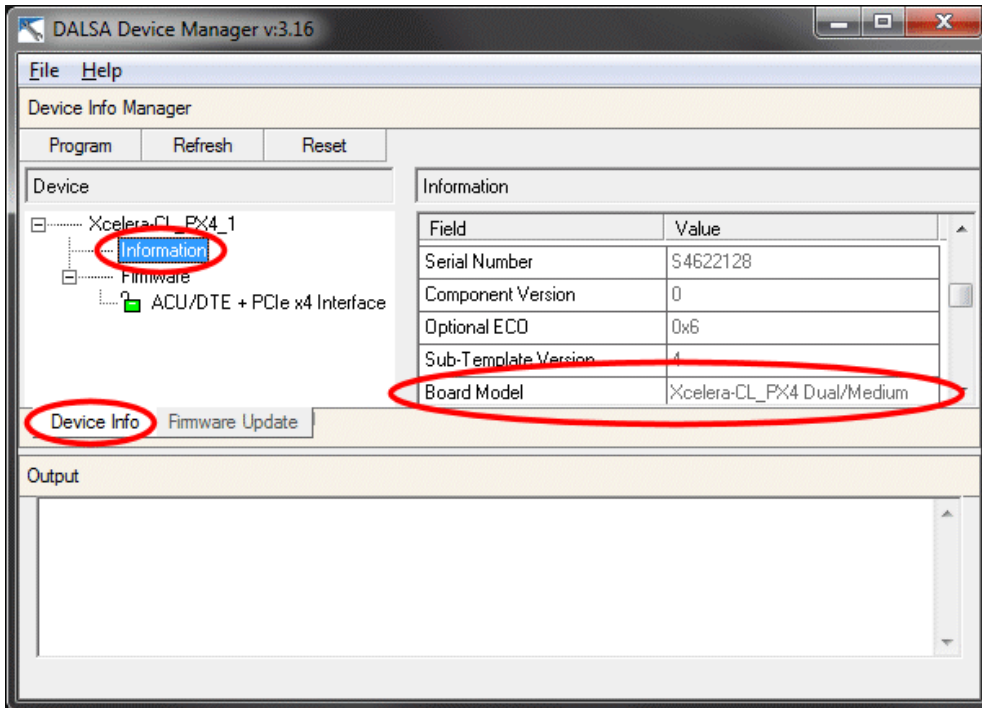
```
%windir%\System32\DCAMAPI\Modules\sopera\bin\CorDeviceManager.exe -a/bCorX64Expre4xx
```

2. Press the Firmware Update tab and change the Configuration to Medium CameraLink for the board you wish to reprogram:



3. Press the Start Update button to reprogram the board. When done, do not reboot yet if it tells you.

4. Press the Device Info tab, then click Information, scroll the right pane to show the Board Model and take note of it:



5. Edit this file:

```
%windir%\System32\DCAMAPI\Modules\sapera\bin\BestMatch.ini
```

Modify it (edit and save) and change the Default CFC file Id to be 1 for the board you modified. For example:

```
[options]
Install Silently=1
Silent Install Error Messages=0
Multiple Firmware Configuration=0
Multiple Firmware Configuration=0
Best Match=1
```

```
[Xcelera-CL_PX4_1]
Default CFC file Id=1
Board Model=4098
CMI=0x0000
```

```
[Xcelera-CL_PX4_2]
Default CFC file Id=2
Board Model=4097
CMI=0x0000
```

If your Board Model is Dual/Medium, then modify the section which includes Board Model=4098. If your Board Model is Full/Medium, then modify the section which includes Board Model=4097.

The above example shows changing the firmware type for a Dual/Medium board to Medium.

6. If it told you to reboot in step 3, do it now, then everything should be OK.

If you should need to reprogram back to Dual Base or Full (depending on your Board Model), follow the instructions above to reprogram the board and modify the INI file with Default CFC file Id=3 for Dual Base and Default CFC file Id=2 for Full.