Use of hardware acceleration on PC

As of March, 2020

When displaying images of the camera using hardware acceleration of the PC, required the specifications of PC as folow.

"The PC is equipped with specific hardware (CPU[*1], GPU, etc.), and device drivers corresponding to those hardware are installed properly."

*1: The CPU of the PC must support QSV(Intel® Quick Sync Video).

This information provides test results conducted under our environment and does not guarantee under all conditions.

Please note that we used Internet Explorer for downloading at the following description and its procedures may differ if you use another browser software.

Images may not be displayed, may be delayed or some of the images may be corrupted as follow, depends on usage conditions, performance and network environment of the PC.

- When multiple windows are opened and operated on the PC
- When sufficient bandwidth cannot be secured in your network environment
- When the network driver of your computer is old (the latest version is recommended)
  *When the image is not displayed or the image is distorted, it may be improved by refreshing the browser.

Applicable models: i-PRO EXTREME series models[*2]
(H.265/H.264 compatible models and H.265 compatible models) ,
i-PRO SmartHD series models[*2] (H.264 compatible models)

*2: You can find if it supports hardware acceleration by existence a setting item of [Drawing method] and [Decoding Options] in [Viewer software (nwcv4Ssetup.exe/ nwcv5Ssetup.exe)] of the setting menu of the camera.

Items of the function that utilize PC hardware acceleration
(Click the items as follow to go to each setting procedures.)

1.About checking if it supports "QSV"

2. About "hardware setting" in "decoding method" ("H.264 decoding method in i-PRO SmartHD camera")

3. About setting of "Direct 2 D" in "drawing method"

1. About checking if it supports "QSV"

(1)On Intel® web site, the names of various processors will come up by selecting "Intel product" -> "processor".
(2)Individual processor information is displayed by selecting the name of the processor to be used.
(3)Select a name of CPU among the information of processor group.

(4)Confirm that the item of "Intel® Quick Sync Video" in "Graphics Specification" of "Technical specifications" shows "Yes".

Graphics Specifications			
Processor Graphics '	Intel® UHD Graphics 620	Graphics Base Frequency	300 MHz
Graphics Max Dynamic Frequency	1.15 GHz	Graphics Video Max Memory	32 GB
Graphics Output	eDP/DP/HDMI/DVI	4K Support	Yes, at 60Hz
Max Resolution (HDMI 1.4)‡	4096x2304@24Hz	Max Resolution (DP)‡	4096x2304@60Hz
Max Resolution (eDP - Integrated Flat Panel)‡	4096x2304@60Hz	DirectX* Support	12
OpenGL* Support	4.5	Intel® Quick Sync Video	Yes
Intel® Clear Video HD Technology	Yes	Intel® Clear Video Technology	Yes
# of Displays Supported '	3	Device ID	0x3EA0

2. About "Hardware" setting in "Decoding Options" ("H.264 decoding method in i-PRO SmartHD camera")

When "Hardware" is set for H.265 decoding method, images may not be displayed, may be delayed or some of the images may be corrupted due to the conditions as follow depending on the display adapter of the PC and its version.

(For the setting of "Hardware", refer to the Operating Instructions.)
For more details, refer to the following item.

- When display adapter does not support this function (* 1)
- When the device driver of the display adapter of the PC is old (The latest version is recommended (* 2))
- When the OS of the PC is not Windows 10 (The latest version of Windows 10 is recommended.)
- Refer to the following for a guideline of CPU where hardware decoding can be used.

> H.264: The first-digit of number is 3 or larger like "Intel$^{®}$ Core^{TM} i7 3770".

> H.265: The first-digit of number is 6 or larger like "Intel$^{®}$ Core^{TM} i7 6700".

If the image is not displayed, delayed or a part of the image is corrupted, it may be improved by installing latest version of the display adapter or OS version of the PC (* 2).

* 1: Verified display adapters

(1) Intel$^{®}$ HD Graphics 4000 (Confirm with "Intel$^{®}$ Core^{TM} i7 3770")
(2) Intel$^{®}$ HD Graphics 4600 (Confirm with "Intel$^{®}$ Core^{TM} i7 4770")
(3) Intel$^{®}$ HD Graphics 530 (Confirm with "Intel$^{®}$ Core^{TM} i7 6700")
(4) Intel$^{®}$ HD Graphics 630 (Confirm with "Intel$^{®}$ Core^{TM} i7 7700")

> *The above (1) and (2) support H.264, (3) and (4) support both H.265 and H.264.

In case you cannot enable this function even if you use one of the above display adapters, you may be able to activate by setting the monitor connection of your PC as follow;

(1) Connect cable between the video output terminal built into the PC and the monitor.
(2) If two or more monitors are connected to the PC, set the monitor connected to the built-in video output terminal of the PC as the main monitor by using with "Customize your display" setting (Figure 1).
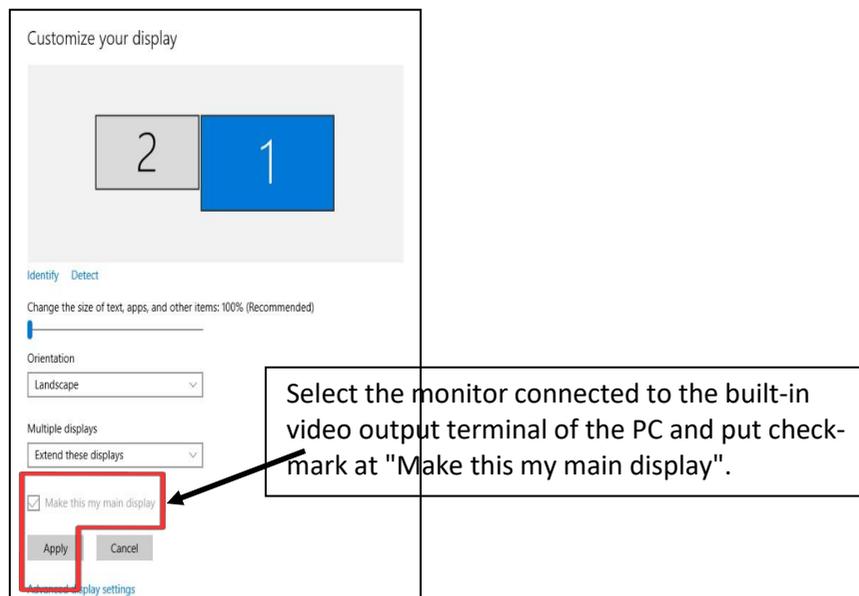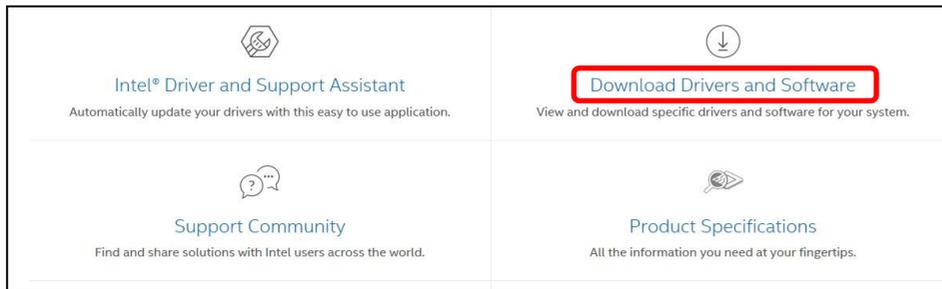

Figure 1: Customize your display (Advanced display settings)

*2: Procedures for updating the display adapter driver (when using Internet Explorer)
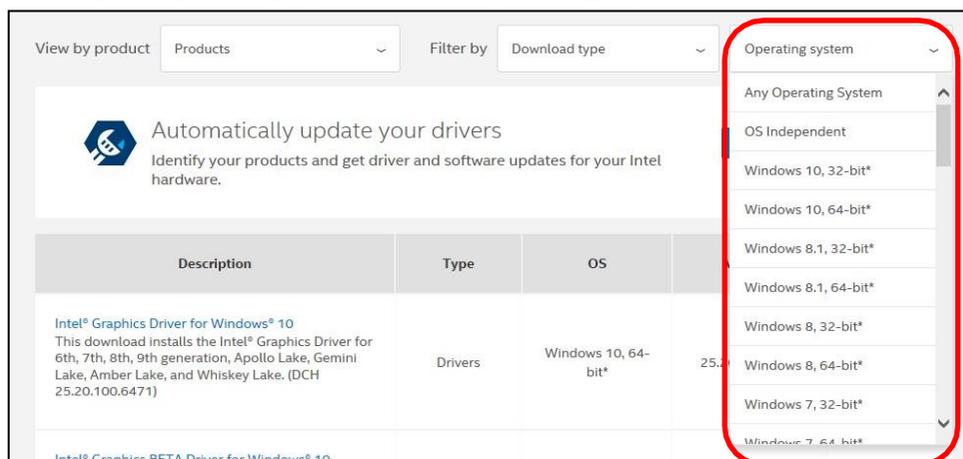   Example: The web site for U.S.A.

(1) Go to Intel® Support Page.
   https://www.intel.com/content/www/us/en/support.html
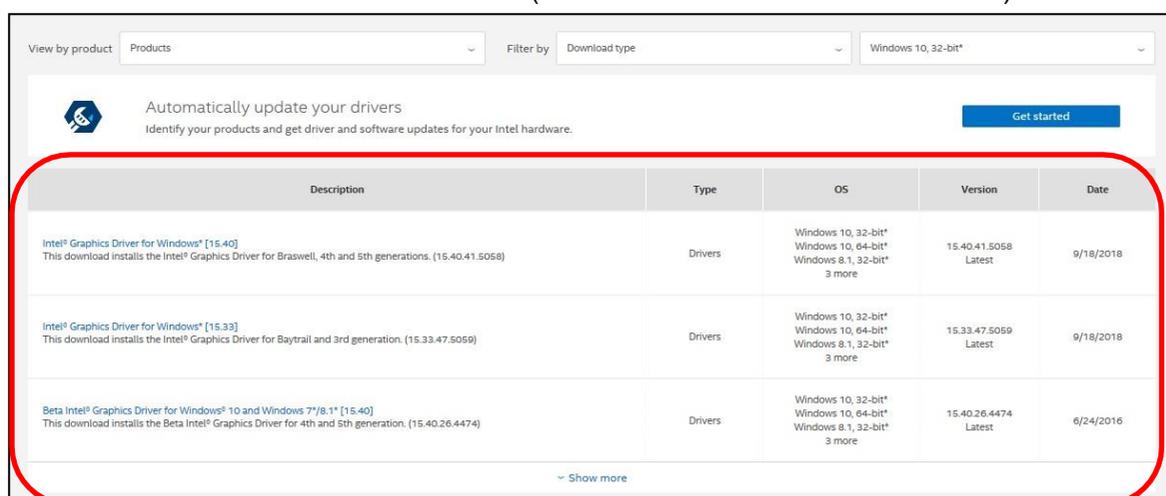
(2) Click "Download Drivers and Software".

(3) Select "Graphics Drivers" in "Select your product".

(4) Select your operating system from "Operating System".

(5) Select the driver of the desired version. (The latest version is recommended.)

(6) Download a "zip" or "exe" format driver from the available download.

3. About setting of "Direct 2 D" in "drawing method"

* There is case where the display adapter is needed obtaining/ updating from the PC makers own web site.
   If the driver obtained in the above procedure does not work, download the driver from the PC makers' web site.

The followings may be a cause of no video, delaying video or corrupting video by setting "Direct2D" for rendering depends on Operating System (OS), Display Adaptor and/or those version;

- Operating System (OS) is Windows Vista with Service Pack 2 (SP2) or earlier
- The device driver of display adaptor is not up-to-date. (*3)

*3: How to up-to-date the device driver (Example: NVIDIA).

Procedures:

(1) Go to NVIDIA's site (https://www.nvidia.com/en-us/) and select "ALL NVIDIA DRIVERS" in "DRIVERS" tab.
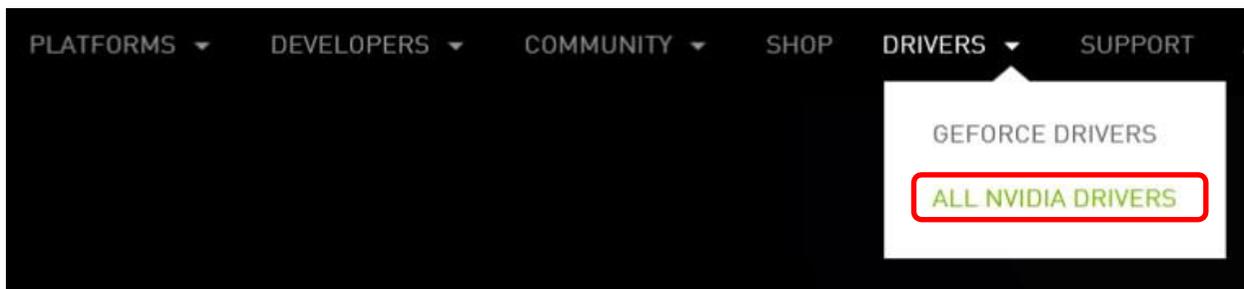
(2) Select a choice of used driver and click "SEARCH" button. (Following is a procedure example with "Quadro")

(3) Click "DOWNLOAD" button.

(4) Click "AGREE & DOWNLOAD" button.

(5) Then, save the driver on your PC and install.