10bpc Feature Enabling In Win10 SDR Mode

Get Started Guide

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# Introduction

This document contains detailed instructions for enabling 10-bit per color (10bpc) feature in Win10 DP and HDMI SDR mode.

## Terminology

Table 1. Terminology

| Term | Description |
| --- | --- |
| HDMI | High Definition Multimedia Interface |
| DP | Display Port Interface |
| 10bpc | 10-bit Per color |
| TGL | Tiger Lake |
| GPU | Graphics Processing Unit |
| IGCC | Intel Graphics Command Center |

# Driver and tools preparation

This section describes the software environment setup.

## Download and install GPU driver and tools

* + Download and Install latest GPU driver from link

<https://www.intel.com/content/www/us/en/download/19344/intel-graphics-windows-dch-drivers.html>

* + Download and Install IGCC (Intel Graphics Command Center)

10bpc feature for HDMI interface should be enabled by IGCC. The download links as below: <https://www.intel.cn/content/www/cn/zh/products/docs/graphics/graphics-command-center.html>

* + Download DP Applet tool

10bpc feature for DP interface should be enabled by DP Applet tool. The download links as below: https://www.intel.com/content/www/us/en/secure/design/confidential/software-kits/kit-details.html?kitId=646371&s=Newest

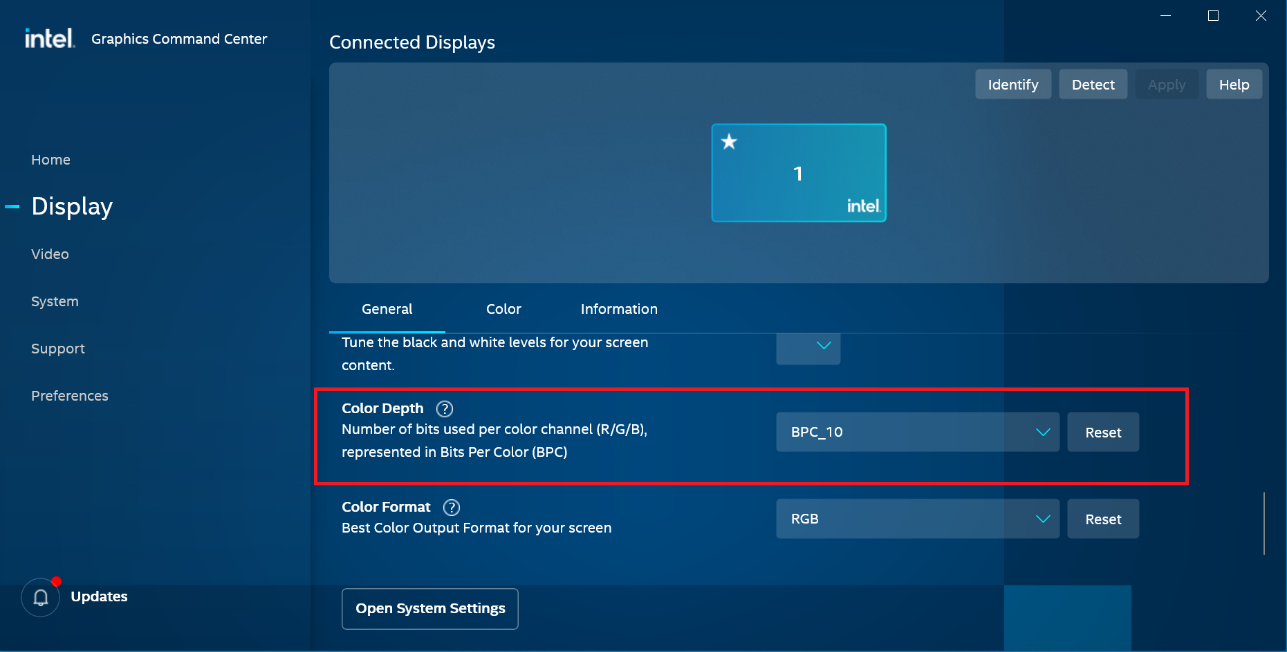
# Enable 10bpc (10-bit per color) on intel GPU.

Currently, 10bit per color feature enabling on intel CPU have different methods for HDMI and DP

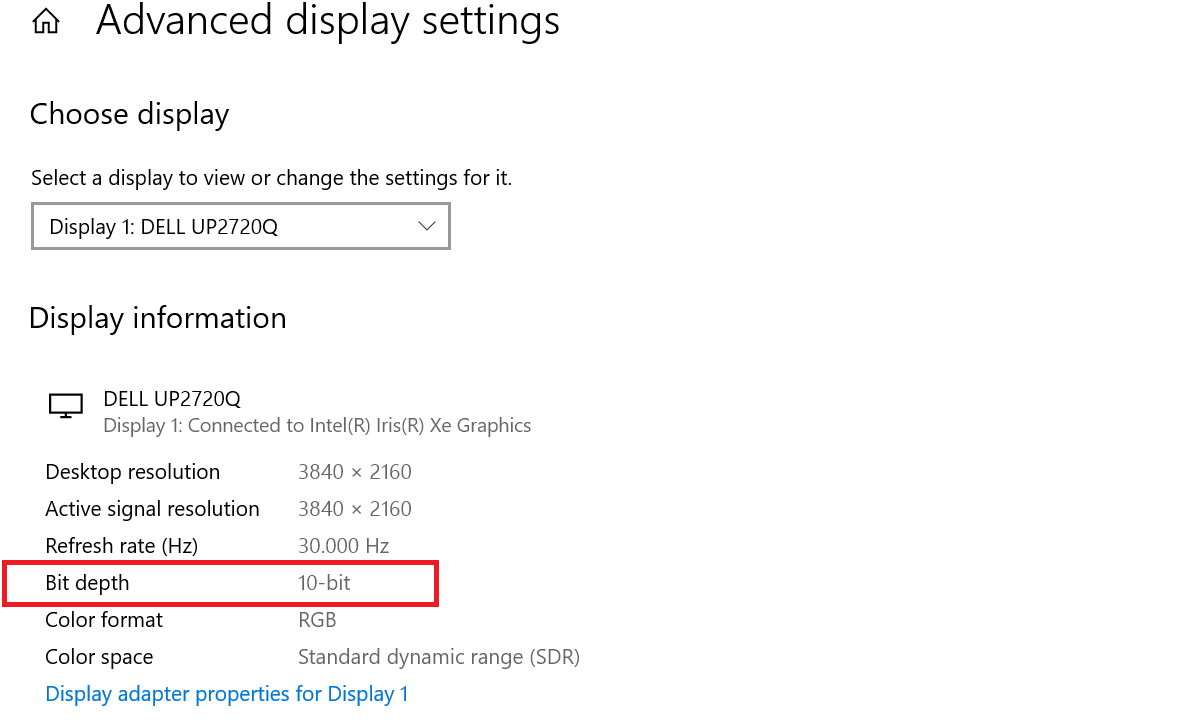
## HDMI 10bpc enabling

HDMI 10bpc feature is enabled by IGCC (Intel Graphics Command Center).

Open IGCC, then Select “BPC\_10” in “Color Depth” dropdown in “Display” page.



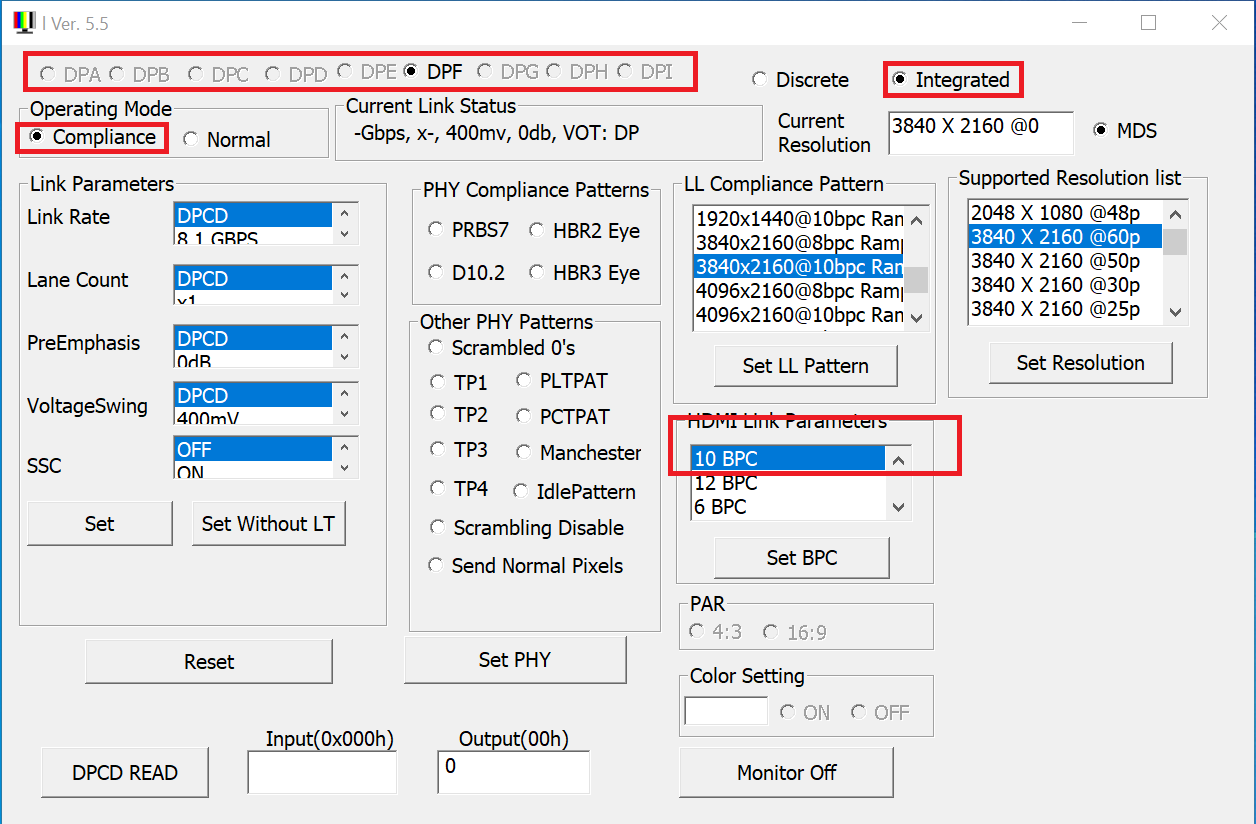
If setting correct, “Bit Depth” would be 10-bit in “Advance display settings” page as below



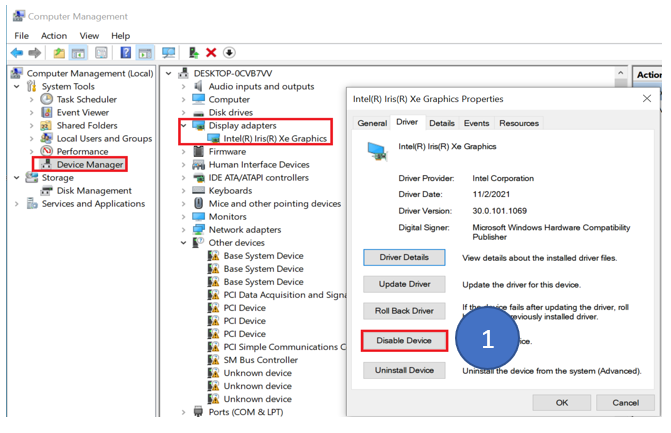
## DP 10bpc enabling

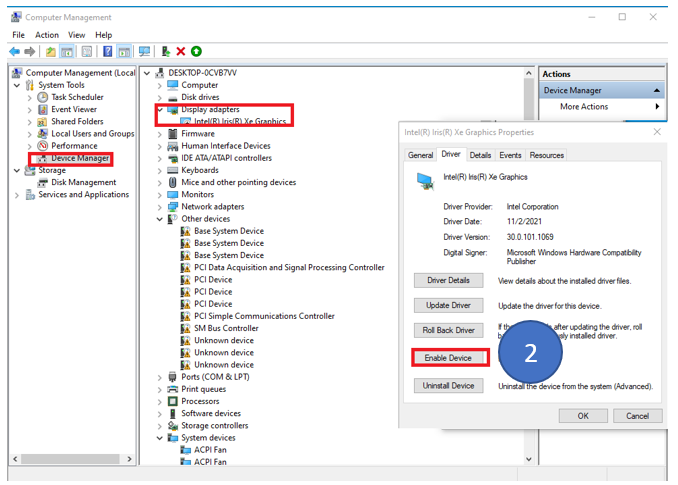
DP 10bpc feature is enabled by DP Applet as follow steps.

1. Choose the items which are marked as red, then click “Set BPC” button to set 10bpc for DP .



1. First click “Disable Device” button first, and then click “Enable Device” button to trig 10bpc configuration



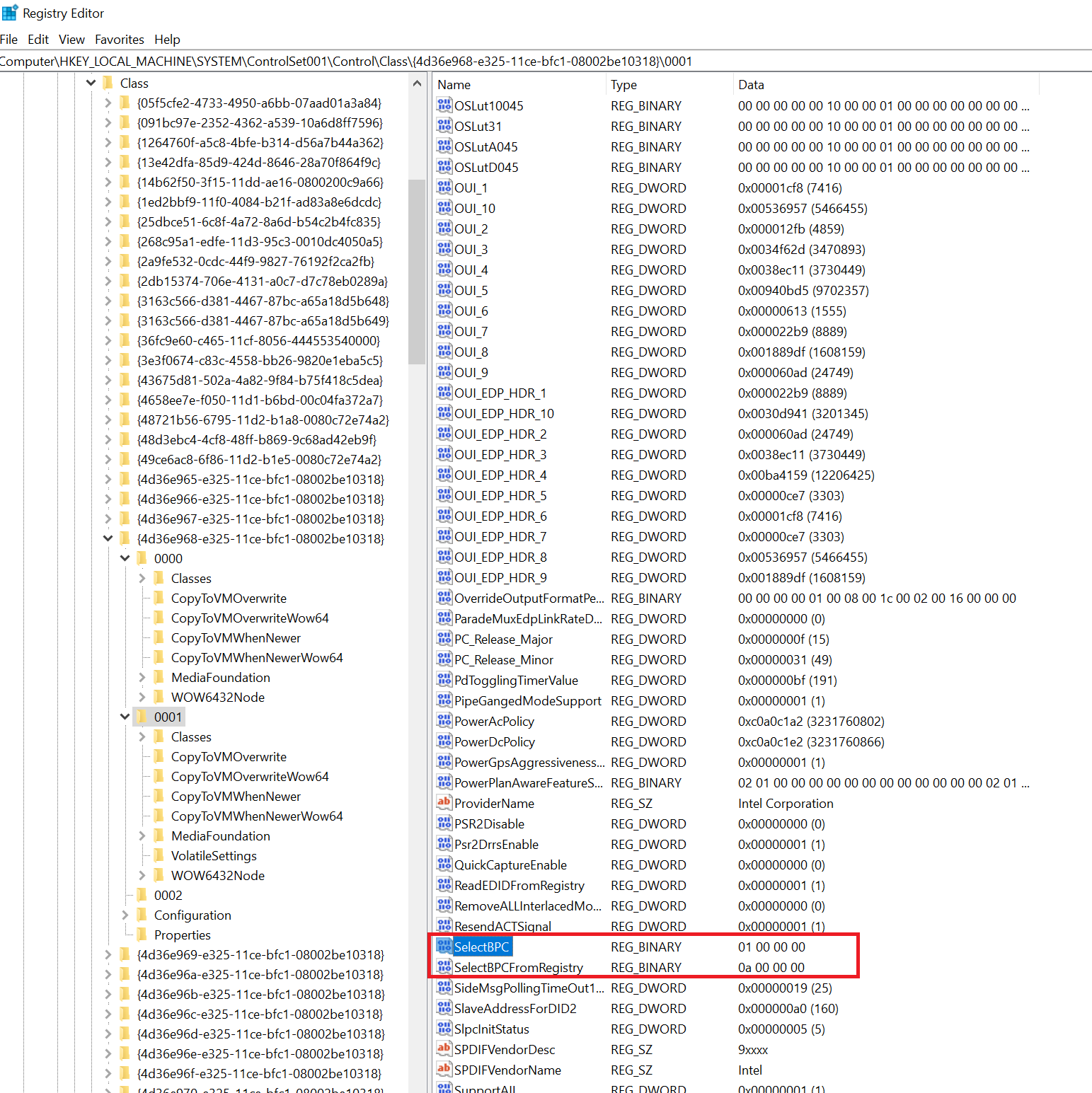


1. Due to Win10’s bug, 10bpc feature is not detected by Win10 in “Advance display settings” page in DP SDR mode. We can check 10bpc enabling status in registry editor. If setting correct, follow two keys are set in registry editor. Computer\HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Control\Class\{4d36e968-e325-11ce-bfc1-08002be10318}\0000

SelectBPC = 0x01000000

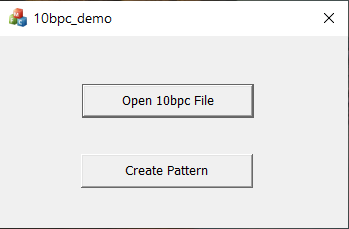
SelectBPCFromRegistry = 0x0a000000

**Note: if many times setting don’t work, please try to modify the key “SelectBPC=0x01000000” and “SelectBPCFromRegistry = 0x0a000000” manually.**



# 10bpc (10-bit per color) feature validation

The application 10bpc\_demo is used to validate 10bpc effect on intel CPU.

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* 1. “Open 10bpc File” button

It loads and renders an image which includes 10bpc content, then 10bpc effect can be seen on the monitor which supports 10bpc.

You can get the image from <https://github.com/jursonovicst/gradient>.

* 1. “Create Pattern” button

It creates a grey scale image by HLSL. The image includes 8-bit and 10-bit content. Comparing the 8-bit and 10-bit content in the image, we can verify if the 10bpc effect is working.