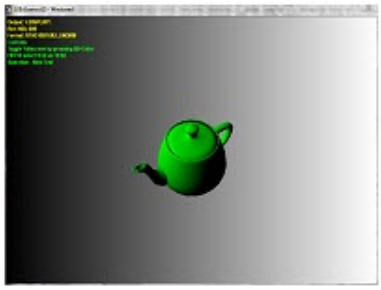
10BitScanout10 Sample

Collapse All

This sample shows you how to use Direct3D 10 to switch between 10 bit color output when in full-screen mode, and eight bit color output when in windowed mode.



Path

Source	*SDK root*\Samples\C++\Direct3D10\10BitScanout10
Executable	*SDK root*\Samples\C++\Direct3D10\Bin*platform*\10BitScanout10.exe

Sample Overview

This sample shows you how to produce and display test images using both 10- and eight-bit color output, and how to set bit depth appropriately in full-screen or windowed mode. The sample uses 10-bit scan-out support for maximum fidelity when running in full screen mode, and switches to eight-bit scan-out when windowed because the currently-available Windows desktop only supports eight-bit scan-out. The sample provides a number of different test signals.

The majority of video cards today support 10-bit digital-to-analog convertors, so any display connected with VGA analog cabling will dither the extra bits of information to the eight-bit displayable range supported by this connection.

For digital connections (such as DVI, HDMI, and Display Port), some displays can take native 10-bit data, and show it correctly. For those that don't, the GPU will either truncate or once again dither it down to a displayable eight-bit range.

There is no real cost to showing 10-bit data since the pixel format (1010102) still only takes up 32 bits. The 10-bit scan out provides an opportunity to remove noticeable banding artifacts that are most clearly visible in the lower part of the color range.

Some video cards can show frame buffers in float16 formats with normalized float data. Such cards convert down (rather than dithering) to a displayable bit range on display.

Keyboard Controls

Alt+Enter toggles between full-screen and windowed mode.

F8 selects an 8-bit back buffer format.

F10 selects a 10-bit back buffer format.

Spacebar cycles through the different test signals.

Note

Transitioning between eight- and 10-bit formats will switch out of full screen mode by design due to DXGI requirements.