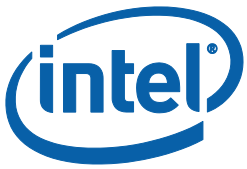

Intel® Media SDK Features in Microsoft Windows 7* Multi-Monitor Configurations on 2nd Generation Intel® Core™ Processor-Based Platforms

Technical Advisory

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Contents

Revision History

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	1.0	• Initial version	December 2010

1 Introduction

The 2nd Generation Intel® Core™ Processor-Based Platform provides version 2.0 of the Intel® Media SDK programming interface for applications to take advantage of the processor's hardware accelerated media features. It is important for users to understand Multi-monitor configurations that expose the Intel Media SDK interface so that supported applications run most optimally. Additional information about Intel Media SDK can be found at this link, http://software.intel.com/en-us/articles/media/.

1.1 Scope of this Document

This document describes the supported usage scenarios for Intel Media SDK 2.0 features in Microsoft Windows 7* Multi-Monitor configurations on 2nd Generation Intel Core Processor-Based Platforms.

Concurrent use of multiple active graphic devices was natively supported in Microsoft Windows XP* but not in Windows Vista*. This document will focus on Windows 7 configurations only.

Topics discussed are:

- Enabling Multi-Monitor on Intel Platforms
- Display configurations that provide Intel Media SDK 2.0 availability
- Usage Scenarios and Known Limitations.

Intel® Wireless Display, Switchable Graphics configurations, and protected content playback such as Blu-ray* are not covered in the scope of this document.

1.2 Target Audience

This document is intended to assist users by describing display configurations and scenarios that expose the Intel Media SDK 2.0 interface for applications to use.

1.3 Terms Used in this Document

Term	Definition
Multi-Monitor	Multi-Monitor is a native feature of Windows 7 that allows the Windows Desktop to be extended across two (or more) displays. Displays may be driven by any available graphics devices in the system.
2nd Generation Intel Core Processor	The 2nd Generation Intel Core Processor includes graphics on the same die.

Term	Definition
Intel Media SDK 2.0	Intel Media SDK 2.0 is a programming interface that allows application developers to write code that uses the Intel Media SDK 2.0 Features in the 2nd Generation Intel Core Processor. Intel Media SDK 2.0 optimizes video routines for max hardware acceleration providing one single API for video encoding, decoding, transcoding, and preprocessing of H.264, MPEG-2, and VC-1 streams and other common digital formats. *Intel Media SDK 2.0 Solution Brief* *Intel Media SDK 2.0 Product Brief* Intel Visual Computing Media: http://software.intel.com/en-us/articles/media/
Intel® Quick Sync Video	Intel® Quick Sync Video is an Intel Enhanced Visual Feature that uses the Intel Media SDK 2.0 interface to process media for incredibly fast conversion of video files for portable media players or online sharing.
Intel Graphics Device	The use of Intel Graphics Device in this document refers specifically to the 2nd Generation Intel Core Processor Graphics Device.
Discrete Graphics Device	Discrete Graphics Device refers to a non-Intel graphics card on the PCI express bus.
Hot Plug	Hot Plug refers to enumeration and de-enumeration of a device that is plugged and unplugged while the system is powered on and operating system is loaded. Hot Plug support in this document refers specifically to plugging and unplugging displays to display connectors when the system is powered on.
Cold Plug	Cold Plug refers to enumeration and de-enumeration of a device that is plugged and unplugged while the system is powered off. Cold Plug support in this document refers specifically to plugging and unplugging displays to display connectors when the system is powered off.
Windows Primary Display	The Windows Primary display is the display on the desktop that provides the Start Menu. It is automatically selected and also user selectable.
Windows Non-Primary Display	The Windows Non-Primary display is any display on the desktop that does not have the Start Menu. Any display that is not selected as Primary will be Non-Primary.

2 Enabling Multi-Monitor on Intel Platforms

2.1 System BIOS Requirements

The Intel Graphics Device should be enabled in the system BIOS. A user may set the System BIOS Primary Display to either the Intel Graphics Device or the Discrete Graphics Device. Selection of the BIOS primary display does not affect Windows display enumeration, but some applications may require BIOS Primary Display to be set to the Intel Graphics Device to run properly.

2.2 Display Requirements

Two (or more) displays must be present with at least one display connected to each of the graphics devices.

2.3 Operating System Requirements

Multi-Monitor is a native feature available in Windows 7. Display drivers for each graphics device must be installed for Multi-Monitor to function.

2.4 Configuring Windows 7 Multi-Monitor

In most cases, Windows 7 will configure Multi-Monitor configurations automatically upon detecting the presence of two (or more) graphics devices with displays connected, setting either the Intel Graphics Device or the Discrete Graphics Device as the Primary Display and extending the desktop to the other device.

A user may reposition each display on the desktop, change resolutions, move application windows across displays and set the Primary Display using the Windows 7 Screen Resolution Display Configuration tool or the graphics vendor's configuration tool.

2.5 Supported Display Configurations

The table below describes the possible display configurations and the availability of the Intel Media SDK 2.0 interface in each configuration:

Primary	Non-Primary	Intel Media SDK 2.0
Intel	None	Yes
Discrete	None	No
Intel	Discrete	Yes
Discrete	Intel	Yes

If the Intel Graphics Device is driving a Primary or Non-Primary display on the Windows Desktop, the Intel Media SDK 2.0 interface will be exposed and available for applications to use. Intel Media SDK 2.0 is not available when there are no displays connected to the Intel Graphics Device.

3 Usage Scenarios and Known Limitations

3.1 System BIOS Primary Display Setting

The Intel Media SDK 2.0 interface is available irrespective of which graphics device is set to Primary Display in the system BIOS as long as one of the displays on the desktop is connected to the Intel Graphics Device. Some applications may require BIOS Primary Display to be set to the Intel Graphics Device to run properly.

3.2 Cold Plug and Hot Plug

The Intel Media SDK 2.0 interface is available irrespective of whether displays are cold plugged or hot plugged as long as one of the displays on the desktop is connected to the Intel Graphics Device.

3.3 Windows 7 Primary or Non-Primary Display

The Intel Media SDK 2.0 interface is available irrespective of whether the display connected to the Intel graphics device is set to Primary or Non-Primary in Windows 7. As long as the Intel Graphics Device is driving a part of the desktop, the application supporting Intel Media SDK 2.0 can be launched from either the Primary or Non-Primary display on the desktop.

3.4 Moving Application Window Across Displays

The availability of the Intel Media SDK 2.0 interface does not change when an application is moved across displays on the desktop. As long as the Intel Graphics Device is driving a part of the desktop, the Intel Media SDK 2.0 interface is exposed and available for applications to use.

3.5 Running Application on Discrete Graphics Display

If there is only one display and it is connected to the Discrete Graphics Device, the Intel Media SDK 2.0 interface will not be available. However, the Intel Media SDK 2.0 interface will be available to an application launched from a display connected to the Discrete Graphics Device if there is an Intel Graphics Device driving another display on the desktop.

3.6 Display Configuration Change Mid-Process

A display configuration change that removes a display connected to the Intel Graphics Device while running an application that supports Intel Media SDK 2.0 is not a defined usage scenario. For example, when transcoding a media clip using Intel® Quick Sync Video technology, unplugging the display connected to the Intel Graphics Device is not a defined usage scenario. The behavior is undefined and could vary from application to application.