Getting the Best Media Playback Experience with the Intel® G45 Express Chipset

The Intel® G45 Express Chipset with Intel® Clear Video Technology offers an exceptional media experience for your desktop PC. This reference guide explains the optimal hardware configuration for the motherboard and the software driver settings that unlock the graphics processing potential— delivering the sharpest, smoothest playback of high-definition video content.

The built-in capabilities of the Intel® Graphics Media Accelerator X4500HD, integrated into the Intel G45 Express Chipset, are available immediately upon installation. However, to optimize the performance and visual experience, follow the instructions in this guide.

G45
EXPRESS CHIPSET

BASELINE SYSTEM CONFIGURATION

The first step to ensure the best results with the Intel G45 Express Chipset is to meet the baseline hardware and software requirements.

To establish the foundation for optimal graphics performance with the Intel G45 Express Chipset, we recommend that your system have the hardware components shown to the right.

Also, ensure that you have the latest BIOS installed on your motherboard. The latest BIOS could be downloaded from your system OEM or motherboard manufacturer's website.

HARDWARE FEATURE	SPECIFICATIONS
Processor	Intel® Core™2 processor or better.
System memory	2 GB DDR2-800 (minimum) configured in dual-channel mode.
Display	For high-definition playback, a native 1080p display with either HDMI* or DisplayPort* and HDCP.

The following software elements also improve the media playback and display capabilities.

SOFTWARE FEATURE	SPECIFICATIONS
Software driver	Latest Intel® Graphics driver for Microsoft Windows Vista*. (Microsoft Windows XP* is not supported for Blu-ray* playback.)
Optimized media player	A player optimized for high-definition playback with the Intel® G45 Express Chipset, such as Corel WinDVD* 9, ArcSoft TotalMedia* Theatre, or CyberLink PowerDVD* 8.

UNLOCKING THE FEATURES OF INTEL® CLEAR VIDEO TECHNOLOGY

Through a combination of video-processing hardware and software technologies, Intel® Clear Video Technology delivers enhanced HD video playback, sharper image quality, and precise color control to a variety of display devices.

Support for the latest display components gives end users flexibility and enhanced image quality when connecting their PC to external devices, such as video monitors, digital TVs, and set-top boxes. The following table highlights the capabilities of this technology.

FEATURE	BENEFIT
Enhanced high-definition video playback	Accelerates the decoding of HD video content—including Blu-ray Disc* movies—for smoother playback, using dedicated hardware in the Intel® G45 Express Chipset. Also enables smooth, multi-stream playback for picture-in-picture display.
Sharper image quality	Sharpens images and eliminates the "jaggies" and video artifacts in interlaced content.
Precise color control	Enhances color rendering using the ProcAmp settings, which provide adjustments to hue, saturation, brightness, and contrast. Automatically enables improved color accuracy of video clips under a variety of conditions.
Advanced digital display support	Supports PC interconnection to a variety of digital display types. Includes DisplayPort*; HDMI* at 720p, 1080i, and 1080p; and support for Media Expansion and ADD2 cards.

You can configure the graphics features through the Intel Graphics Media Accelerator user interface. To access the settings:

1. Right-click on the desktop.

2. Select **Graphics Properties**.

3. Choose **Video Settings**.

Descriptions of the settings for the video options are on page 3.

The built-in functionality of Intel Clear Video Technology can be accessed through a responsive, control panel interface that provides visual feedback on changes to the settings.

INTEL® GRAPHICS MEDIA ACCELERATOR DRIVER CONTROLS

You can adjust the settings for Intel Clear Video Technology through the control panel dialog boxes for the Intel Graphics Media Accelerator X4500HD.

1 Double-click the icon for the Intel Graphics Media Accelerator X4500HD, and then choose the **Display Device** to configure.

2 Click the **Video Settings** button to display the option settings available on the tabbed panels: Video Quality, Color Control, and Video Scaling.

The following sections describe the effects enabled by each option. You can preview in real time any changes you make by choosing one of the three optional bitmap images. The actual changes do not take place until you click the **Apply** button.

Adjusting the Video Quality

| SETTING	FUNCTION
Advanced De-interlacing: Enable Film Mode Detection	Activates de-interlacing functions using advanced pixel adaptive (SD/HD-1080i) techniques.
Sharpness Enhancement: Enable Application Settings Override	Switches between (1) applying the picture sharpness settings defined by an application (turned off), and (2) using the setting provided in the control panel (turned on).
Sharpness Enhancement: Sharpness	Heightens the visual sharpness by increasing contrast at edges within an image, to boost visual quality when viewing standard definition content on HD displays.
Noise Reduction: Enable Application Settings Override	Switches between (1) applying the noise reduction settings defined by an application (turned off), and (2) overriding these settings to accept values provided by the end user in the control panel (turned on). When active, this feature uses motion-detection algorithms to minimize noise appearing in video streams.
Restore Defaults	Returns all video quality settings to the original, default values.

Whatever type of entertainment is being viewed, Intel Clear Video Technology enhances the experience with superb visual quality, rich colors, and smooth playback.

Adjusting the Color Control
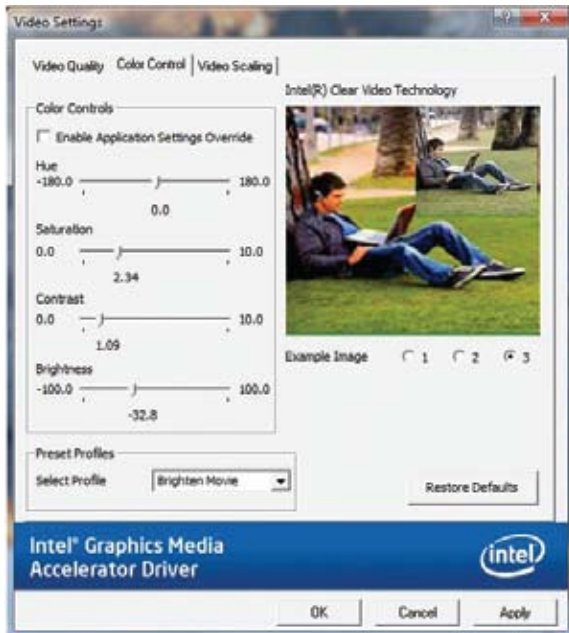
SETTING	FUNCTION
Enables Application Settings Override	Switches between (1) applying the color control settings defined by an application (turned off), and (2) overriding these settings to accept the values you provided in the Color Controls panel (turned on).
Hue	Controls the hue levels that apply to a video stream (cyan, blue, magenta, red, yellow, and green), using a slider to make selections.
Saturation	Controls the degree of color saturation present in a video stream, using a slider to select the degree of saturation.
Contrast	Determines the amount of contrast to be displayed in a video stream.
Brightness	Increases or decreases the level of brightness that applies to a video stream, using a slider.
Preset Profiles	Selects a predefined profile that provides a specific effect or appearance (example: Brighten Movie).
Restore Values	Returns all color control settings to the original, default values.

Adjusting the Video Scaling
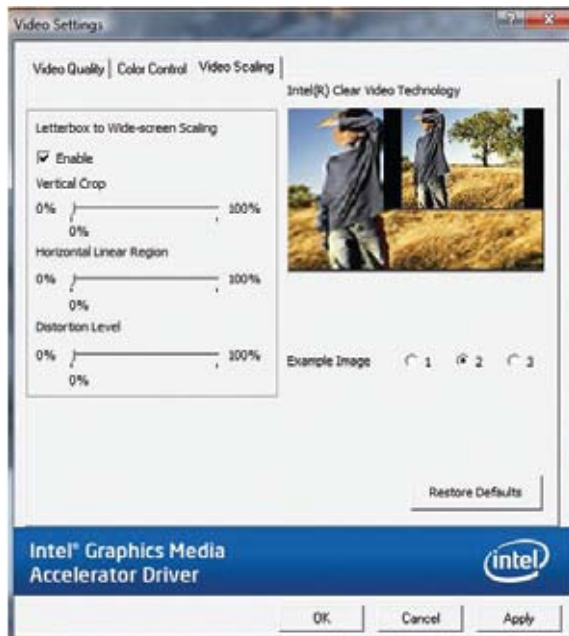
SETTING	BENEFIT
Enable	Lets you configure values for non-linear anamorphic scaling settings, including Vertical Crop, Horizontal Linear Region, and Distortion Level. When turned off, these controls are not accessible.
Vertical Crop	Crops the top and bottom of an image with a 4:3 aspect ratio to more closely resemble a 16:9 aspect ratio.
Horizontal Linear Region	Specifies the size of a source image's center region for linear (1:1) scaling.
Distortion Level	Defines the shape and degree of distortion to be applied to areas of the source image in the non-linear region.
Restore Defaults	Returns all video scaling settings to the original, default values.

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Using Custom Modes
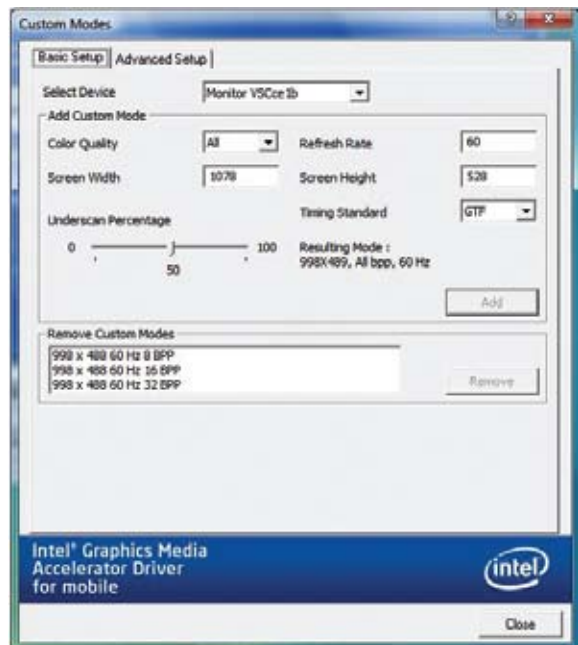
The driver for the Intel G45 Express Chipset includes a Custom Modes panel, which you can use to configure specialized graphics display options for devices you want to attach to the system. Once you create a custom mode, the selections become available on the Settings page under OS Properties and through the Display Settings page of the driver control panel. A Custom Modes button also appears on the Display Devices page of the driver control panel once a custom mode has been created.

> **CAUTION:** *Before you add a custom mode, be sure that you understand the specifications of the target display device, including all supporting timing standards and the detailed timing parameters. Altering modes carries a degree of risk: it can reduce system stability, shorten the system lifespan, and possibly affect system data integrity. A disclaimer warning message, which you must accept, appears before you can create any custom mode.*

The tabs available for custom mode configuration are:

- **Basic Setup Tab:** Creates modes and timings that correspond with existing standards, such as CVT non-reduced blanking timing for monitors and CVT reduced blanking timing for digital displays. This tab does not apply to standard or high-definition television settings.

- **Advanced Setup Tab:** Creates modes or timing additions that correspond with the timing information of particular display devices. This tab does not apply to standard or high-definition television or built-in notebook displays.

CHOOSING A MEDIA PLAYER

Your choice of media players can dramatically affect the appearance and playback performance when viewing digital content. Some players, such as CyberLink PowerDVD* 8 and COREL WinDVD* 9 Plus, have been optimized for use with Intel Clear Video Technology.

Developed in collaboration with Intel to take advantage of the advanced features of the Intel G45 Express Chipset, these media players deliver seamless playback of HD video content, exceptional image quality, and precise color control. Other media players can also work effectively with the Intel G45 Express Chipset, but they may not deliver the same level of consistent high performance and video quality.

CyberLink PowerDVD* 8

A number of PowerDVD 8 features have been optimized for the Intel G45 Express Chipset, including:

- Support for MPEG-2, VC1, and AVC hardware acceleration

- Advanced de-interlacing

- Precision color control

- Support for playback of Blu-ray Discs*

- Sharpness and noise reduction for standard definition content

To ensure that these high-end features are enabled in the media player, follow these steps:

1. Right-click on the initial PowerDVD 8 screen, and then select **Configuration**.

2. Choose **Video** from the available options.

3. Verify that the **Enable Intel Clear Video Technology** item is selected. (In some instances this may be called **Enable Hardware Acceleration**.)

4. Select the **Advanced** settings button, and then confirm that **Advanced De-Interlacing** is selected under the **Perform Hardware De-Interlacing** menu.

5. Verify the **Color Control** settings by opening **Use Color Profile** option (under the **Video Enhancement** menu of the main video tab).

6. Select your preference from the options that appear.

CyberLink offers a version of PowerDVD* 8 that is optimized for Intel® Clear Video Technology, available as a free trial version or full purchase at:
www.cyberlink.com/multi/products/main_1_ENU.html

Corel WinDVD* 9

A number of WinDVD 9 features have been optimized for the Intel G45 Express Chipset, including:

- Support for MPEG-2, VC1, and AVC hardware acceleration

- Advanced de-interlacing

- Precision color control

- Support for playback of Blu-ray Discs

- Sharpness and noise reduction for standard definition content

To ensure that these high-end features are enabled in the media player, follow these steps:

1. Right-click on the initial WinDVD screen, and then select **Setup**.

2. Select **Video** from the setup options.

3. On the Video setup screen, confirm that the **Use Hardware Decode Acceleration** option is selected.

4. Make sure that **Use Hardware Color Acceleration** is checked.

5. Return to the initial screen, right-click, and then choose **Video Center**.

6. Access **Display** and confirm that **Auto-detect** (sometimes called **Advanced De-Interlacing**) is selected under the De-Interlace menu.

7. Make your Color Control adjustments by selecting the **Color** tab in the Video Center, and then choosing your preferences.

Corel offers a version of WinDVD* on its Web site that supports Intel® Clear Video Technology. Download a free trial of the player or purchase the latest version:
http://intervideo.com/WinDVD/WinDVD.jsp?mode=Features

ARCSOFT TOTALMEDIA* THEATRE

The features of ArcSoft TotalMedia* Theatre that have been optimized for the Intel G45 Express Chipset include:

- Support for MPEG-2, VC1, and AVC hardware acceleration

- Advanced de-interlacing

- Support for playback of Blu-ray Discs

- Support for HDCP and HDMI repeaters

Follow these steps to enable the high-end features in the media player:

1 Right-click on the initial ArcSoft TotalMedia Theatre screen, and then select **Setup**.

2 Select **Video** from the setup options.

3 On the Video setup screen, confirm that the **Enable Hardware Acceleration** option is selected.

4 Select the **Advanced Settings** button and confirm that **Auto De-Interlace** is selected in the **Video Mode** pull-down box.

For more details on obtaining ArcSoft TotalMedia Theatre, visit **www.arcsoft.com/products/totalmediatheatre/**.

SELECTING A DISPLAY FOR OPTIMAL VIEWING

To obtain the best visual computing experience with Intel Clear Video Technology, you will need to match the resolution of the video content to be displayed to the capabilities of the output display device. For viewing high-definition video content, choose an HD-capable display. Content targeted for 1080p playback has a native format of 1920 x 1080 pixels, and the selected display device should be able to handle this resolution. Otherwise, video content is scaled to fit the available display parameters, which can result in reduced image quality or poor video playback.

To obtain the optimal video quality, connect the digital video output port—HDMI*, DVI, or DisplayPort*—from the motherboard to the display device. This is the best way to ensure high-quality playback of 1080p content.

RELAX AND ENJOY!

This completes the optimization guidelines for the Intel G45 Express Chipset. You may want to revisit this reference to perform later adjustments, if you update the system components or you want the best results with specific types of media content.

- For more details about the latest Intel Graphics advances and reseller support, visit **www.intel.com/RESELLER/**.

- For up-to-date news about Intel Graphics, go to **www.intel.com/technology/graphics/index.htm**.

Intel Graphics advances help bring you the sharpest, clearest video content. Image courtesy of Mi Casa Multimedia.

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