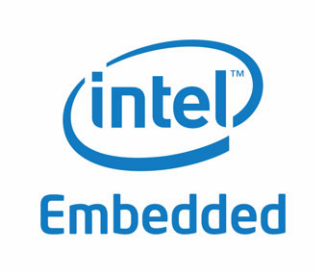

Intel® Embedded Media and Graphics Driver and Video BIOS v1.14 Windows* 7/Windows* Embedded Standard 7

Specification Update

April 2012

Notice: The Intel® Embedded Media and Graphics Drivers may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request.

Document Number: 471876-007US

Contents

Tables

Revision History

Date	Revision	Description
April 2012	007	Errata updated for the v1.14 Windows 7/Windows Embedded Standard 7 release of the Intel® Embedded Media and Graphics Driver.
March 2012	006	Errata updated for the v1.14 Windows 7/Windows Embedded Standard 7 Preliminary release of the Intel® Embedded Media and Graphics Driver.
November 2011	005	Errata updated for the v1.10 Windows 7/Windows Embedded Standard 7 release of the Intel® Embedded Media and Graphics Driver.
July 2011	004	Errata updated for the v1.8.1 Windows 7/Windows Embedded Standard 7 release of the Intel® Embedded Media and Graphics Driver.
July 2011	003	Errata updated for the v1.8 Windows 7/Windows Embedded Standard 7 release of the Intel® Embedded Media and Graphics Driver.
May 2011	002	Errata updated for the v1.8 Beta Windows 7/Windows Embedded Standard 7 release of the Intel® Embedded Media and Graphics Driver.
March 2011	001	Errata updated for the v1.8 Windows 7/Windows Embedded Standard 7 release of the Intel® Embedded Media and Graphics Driver.

Introduction

The Intel® Embedded Media and Graphics Driver, EFI Driver, and Video BIOS (Intel® EMGD) are designed to meet the requirements of embedded applications. Featuring Intel® Dynamic Display Configuration Technology (DDCT), the drivers run on the following Embedded Intel® Architecture (eIA) chipsets:

- Intel® Atom™ Processor E6xx
- Intel® System Controller Hub US15W/US15WP/WPT chipset

Intel® EMGD is designed to work with fixed-function systems, such as In-vehicle Infotainment (IVI) devices, Point-of-Sale (POS) devices, ATMs, gaming devices, etc. It can be configured to work with various hardware and software systems and supports Microsoft Windows* 7 and Windows Embedded Standard operating systems.

The Intel Embedded Graphics Suite consists of both the Intel® EMGD and a Video BIOS (vBIOS) component. These two components are configurable and work together to provide a wide range of features.

Please refer to the *Intel® Embedded Media and Graphics Driver and Video BIOS User's Guide* and RELNOTES.txt in the software package for a detailed description of the supported features and display devices.

Purpose / Scope / Audience

This document is a compilation of Errata. It is intended for those who need to work with the graphics subsystem. This includes, but is not limited to: platform designers, system BIOS developers, system integrators, original equipment manufacturers (OEMs), system control application developers, as well as end users.

This document may also contain information that was not previously published.

This document provides information on open errata in all supported Intel® EMGD packages for version 1.14 of the Intel® EMGD product. It includes information on the following packages:

- Windows* 7 and Windows* Embedded Standard 7
- vBIOS

Table 1. Affected Documents, Related Documents, and Reference Information

Title	Number
Intel® Atom™ Processor E6xx Series Specification Update	457843
Intel® Atom™ Processor E6xx Series External Design Specification	433303
Intel® Embedded Media and Graphics Driver and Video BIOS User's Guide	472133
Intel® Embedded Media and Graphics Driver for Windows 7 and Windows Embedded Standard* 7 Operating Systems Technical Product Specification for Software (TPS)*	471870
Tunnel Creek B0 Silicon Erratum #9: Clipped SDVO Display on Dual Displays or Sprite Plane-Enabled SDVO Display Frequently Asked Questions R1.1	*455133*
VESA BIOS Extensions/Display Data Channel Standard, available at the following website: http://www.vesa.org/public/VBE/VBEDDC11.PDF This document provides information on the 4F VBE functions, which are supported by the Intel embedded Video BIOS.	N/A
VESA BIOS Extension (VBE) Core Functions Standard Version 3.0, available at the following website: http://www.vesa.org/public/VBE/vbe3.pdf Contains information on the VESA BIOS Extension (VBE) specification for standard software access to graphics display controllers that support resolutions, color depths, and frame buffer organizations beyond the VGA hardware standard.	N/A

Conventions and Terminology

Table 2. Conventions and Terminology

Term	Definition
Errata (plural) Erratum (singular)	Errata are design defects or errors. These may cause the Intel® Embedded Media and Graphics Driver, EFI Driver, and Video BIOS' behavior to deviate from published specifications. Hardware and software designed to be used with any given release must assume that all errata documented for that release are present on all devices.

Summary Tables of Current Product Issue Activity

Table 4 shows the Errata that apply to the Intel® EMGD product. Intel may fix some of the Errata in a future release of the software as noted in Table 3. Table 4 uses the codes listed in Table 3. For known issues related to Display Flickering on Intel® Atom™ Processor E6xx Series (B0-Stepping), please refer to *Display Flickering Sightings and Characterization on Intel® Atom™ Processor E6xx Series (B0-Stepping)* white paper for details.

Table 3. Summary Tables Legend

Status Indicator	Column	Definition
X	Driver Version	Indicates that an erratum e**X**ists
Plan Fix	Status	This erratum may be fixed in a future release.
Fixed	Status	This erratum has been previously fixed.
No Fix	Status	There are no plans to fix this erratum.
TBD	Status	This erratum still under investigation. Status to be determined.
A change bar to the left of a table row indicates an item that is either new or modified from the previous version of this Specification Update.		

Table 4. Errata Summary (Sheet 1 of 2)

ID	Impacted Platform(s)	Package	Title	Status
203322	Atom E6xx, US15W/WP/ WPT	Windows 7	Blank screen occurs when playing VC-1 1080p video clip repeatedly using Windows Media Player 12.	No Fix (Third-party defect)
203390	US15W/WP/ WPT	Windows 7	3DMark 06 Game Test 5 or 6 causes system blue screen.	No Fix (Hardware limitation)
203403	US15W/WP/ WPT	Windows 7	Running D3D DX9 DepthOfField.exe in full HD may cause system blue screen.	No fix (Hardware limitation)
203407	Atom E6xx, US15W/WP/ WPT	Windows 7	sDVO option disappears from CUI Display Device page when playing video using Windows Media Player 12 or PDVD8.	No Fix
203416	Atom E6xx	Windows 7	Display flickers when playing H.264 video with Windows Media Player 12.	No fix (Hardware defect)
203507	Atom E6xx	Windows 7	Playback video using PowerDVD changes the Windows 7 OS Aero mode to Basic mode.	No fix (Third-party defect)
203513	Atom E6xx, US15W/WP/ WPT	Windows 7	Incorrect DirectX version reported in CUI Information box.	No fix (Third-party defect)

Table 4. Errata Summary (Sheet 2 of 2)

203521	Atom E6xx	Windows 7	Blue flickering may occur when running Direct 3D 9 SDK application in full screen (PostProcess.exe).	No Fix (Third-party defect)
203584	US15W/WP/ WPT	Windows 7	VC-1 AP@L3, H.264, and MPEG-2 video may lag on higher display resolutions using PDVD8 full screen mode.	No fix (Hardware limitation)
203590	Atom E6xx, US15W/WP/ WPT	Windows 7	Wallpaper is not shown in Extended display when set using Windows Properties.	No Fix (Third-party defect)
203600	Atom E6xx	Windows 7	3DMark03 GT1-Wings of Fury display flickers with Single display setup.	No Fix (Third-party defect)
203602	Atom E6xx, US15W/WP/ WPT	Windows 7	Some OGL Mesa Demo applications fail to work correctly when running on Windows 7 Pro.	TBD
203613	US15W/WP/ WPT	Windows 7	sDVO-CH7308 display becomes intermittently blank when changing to 1024x768 resolution.	TBD
203619	Atom E6xx, US15W/WP/ WPT	Windows 7	Display Corruption when running 3DMark06 “GT1-Return To Proxycon”.	No Fix (Third-party defect)
203756	Atom E6xx	Windows 7	SDVO-SI1364 display corruption may occur with color correction set to minimum followed by hibernate mode.	TBD
203808	Atom E6xx	Windows 7	Not able to boot into Windows when using E620/E620T 0.6 GHz SKU with EMGD1.8 Gold build 2025.	No Fix (OS limitation)
204199	Atom E6xx	Windows Embedded Standard 7	Burn In Pro V6.0 and V7.0 test forced system crash and reboot.	TBD
204339	Atom E6xx	Windows 7	3D Mark 03 application menu resized after test loops finished.	No fix (Third-party defect)
204370	Atom E6xx	Windows 7	When using 2GB memory for the system, the display becomes corrupted on SDVO CH7317 display upon logging into Windows.	TBD
204410	Atom E6xx, US15W/WP/ WPT	VBIOS	PWM frequency is wrong value for Atom E6xx.	Plan Fix
204421	Atom E6xx	Windows 7	Intel® EMGD CUI/GUI does not properly send the MCCS DDC/CI messages to the monitor.	TBD
204494	US15W/WP/ WPT	VBIOS	With Clone mode portorder 24000, the intLVDS shows blank screen when entering CMOS setup.	TBD
204505	Atom E6xx, US15W/WP/ WPT	Windows 7	Video Encode does not work with Media SDK 2012.	TBD
204517	Atom E6xx	Windows 7	Unable to change video format through CUI on a CH7022-S Video or Composite display setup.	TBD

Errata

1. Blank screen occurs when playing VC-1 1080p video clip repeatedly using Windows Media Player 12.

Reference #: 203322

Driver: Graphics

Platform: Atom E6xx, US15W/WP/WPT

Package: Windows 7

Resolution: This appears to be an issue caused by Windows Media Player. The WMPlayer.exe event traces show that Video Process Blt events stop occurring, from the analysis the last two frames where never blted. This is a third-party defect that cannot be fixed in the graphics driver.

Status: No Fix (Third-party defect)

2. 3DMark 06 Game Test 5 or 6 causes system blue screen.

Reference #: 203390

Driver: Graphics

Platform: US15W/WP/WPT

Package: Windows 7

Resolution: To workaround this issue on US15W, there are two possible solutions:

- Start `regedit` from the command line,
  Go to:`HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\GraphicsDrivers`
  Right-click **New** .. dword .. enter name: “TdrLevel” ..double-click.. enter value: “TdrLevelOff”.

  or

- Start `regedit`
  Go to:`HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\GraphicsDrivers`
  Right-click **New** .. dword .. enter name: “TdrDelay” ..double-click.. enter hex-value: “00000005”

  After you make the changes above, restart the system and then run 3DMark06. After the benchmark finishes and you get the score, remove the changes above and restart your system.

Status: No Fix (Hardware limitation)

3. Running D3D DX9 DepthOfField.exe in full HD may cause system blue screen.

Reference #: 203403

Driver: Graphics

Platform: US15W/WP/WPT

Package: Windows 7

Resolution: When running D3D DX9 `DepthOfField.exe` with 1920x1080 display resolution on US15W systems, may experience blue screen. This issue has been determined to be a hardware limitation where the GPU may have a limitation in processing large resolution color/depth buffers. This issue cannot be fixed by the graphics driver.

Status: No fix (Hardware limitation)

4. sDVO option disappears from CUI Display Device page when playing video using Windows Media Player 12 or PDVD8.

Reference #: 203407

Driver: Graphics

Platform: Atom E6xx, US15W/WP/WPT

Package: Windows 7

Resolution: The sDVO option disappears from CUI Display Device while a video is playing. This behavior is seen on all display modes (Single, Clone, and Extended) when playing video using WMP12 or PDVD8.

This is the intended behavior, to prevent mode switching while video is playing and eliminate a media player pop up with an error message.

Status: No Fix

5. Display flickers when playing H.264 video with Windows Media Player 12.

Reference #: 203416

Driver: Graphics

Platform: Atom E6xx

Package: Windows 7

Resolution: This issue occurs on Intel® Atom™ Processor E6XX platform with B0 stepping. Display may flicker when playing video on Single, Clone, or Extended mode with resolution 10x7 or above. This has been determined to be an Intel® Atom™ Processor E6xx hardware defect and the issue cannot be resolved by graphics driver. Consider using B1 stepping as a solution.

Status: No fix (Hardware defect)

6. Playback video using PowerDVD changes the Windows 7 OS Aero mode to Basic mode.

Reference #: 203507

Driver: Graphics

Platform: Atom E6xx

Package: Windows 7

Resolution: When Windows 7 is in Aero mode PowerDVD software changes it to the Basic mode by default upon launch. Please contact CyberLink for more details.

Status: No fix (Third-party defect)

7. Incorrect DirectX version reported in CUI Information box.

Reference #: 203513

Driver: Graphics

Platform: Atom E6xx, US15W/WP/WPT

Package: Windows 7

Resolution: Incorrect DirectX version reported in CUI > Information > System. It is reported as system having a version 10.0 while Windows dxdiag check shows DirectX 11. This may be possibly due to an incorrect value returned by `dwDirectXVersionMajor`. This issue cannot be fixed by graphics driver. Please contact Microsoft for any possible corrections.

Status: No fix (Third-party defect)

8. Blue flickering may occur when running Direct 3D 9 SDK application in full screen (PostProcess.exe).

Reference #: 203521

Driver: Graphics

Platform: Atom E6xx

Package: Windows 7

Resolution: Flickering appears to be an expected behavior when the application is using asynchronous flips, which means to “flip immediately.” The application does not check for completeness of blits to the framebuffer to which it is switching and it is requesting the display controller to do the flip before hardware has completed the current blit. This is reason flickering occurs.

To avoid flickering, the application should check for the blit completeness; for instance, the app can call the `GetCurrentScanLine` DDI to get the current scan line to which the display is currently blitting. Based on the number returned, the application can perform polling before requesting the next flip operation.

Status: No Fix (Third-party defect)

9. VC-1 AP@L3, H.264, and MPEG-2 video may lag on higher display resolutions using PDVD8 full screen mode.

Reference #: 203584

Driver: Graphics

Platform: US15W/WP/WPT

Package: Windows 7

Resolution: PDVD8 does not support Enhanced Video Renderer (EVR) for overlay display on Windows 7. The video frame is rendered to the display through 3D blend function. The video lagging does not occur on Atom E6xx but occurs only on the US15W platform. The issue has been determined to be a US15W GPU limitation where it is running at 200 MHz compared to Atom E6xx’s 400 MHz GPU. This issue cannot be fixed by the graphics driver.

Status: No fix (Hardware limitation)

10. Wallpaper is not shown in Extended display when set using Windows Properties.

Reference #: 203590

Driver: Graphics

Platform: Atom E6xx, US15W/WP/WPT

Package: Windows 7

Resolution: By pressing the <Windows>-P button or using the Windows Properties to switch to an Extended desktop display configuration, the system may not paint the desktop background of the secondary monitor. This has been determined to be a issue in the OS. Please contact Microsoft for details. At this time the suggested workaround is to select any background other than the Windows 7 default background.

Status: No Fix (Third-party defect)

11. 3DMark03 GT1-Wings of Fury display flickers with Single display setup.

Reference #: 203600

Driver: Graphics

Platform: Atom E6xx

Package: Windows 7

Resolution: Flickering appears to be an expected behavior when the application is using asynchronous flips, which means to “flip immediately.” The application does not check for completeness of blits to the framebuffer to which it is switching and it is requesting the display controller to do the flip before hardware has completed the current blit. This is reason flickering occurs.

To avoid flickering, the application should check for the blit completeness; for instance, the app can call the `GetCurrentScanLine` DDI to get the current scan line to which the display is currently blitting. Based on the number returned, the application can perform polling before requesting the next flip operation.

Status: No Fix (Third-party defect)

12. Some OGL Mesa Demo applications fail to work correctly when running on Windows 7 Pro.

Reference #: 203602

Driver: Graphics

Platform: Atom E6xx, US15W/WP/WPT

Package: Windows 7

Resolution: When running OGL Mesa Demo test, some of the tests, such as gamma, gearbox, and tessdemo, cannot produce correct results. This issue is under investigation and there is no planned workaround at this time.

Status: TBD

13. sDVO-CH7308 display becomes intermittently blank when changing to 1024x768 resolution.

Reference #: 203613

Driver: Graphics

Platform: US15W/WP/WPT

Package: Windows 7

Resolution: This issue is under investigation and there is no planned workaround at this time.

Status: TBD

14. Display Corruption when running 3DMark06 “GT1-Return To Proxycon”.

Reference #: 203619

Driver: Graphics

Platform: Atom E6xx, US15W/WP/WPT

Package: Windows 7

Resolution: This appears to be an issue caused by the texture shadows mapping in IMG DDK code. A possible workaround is to disable the hardware shadow mapping in the benchmark settings page.

Status: No Fix (Third-party defect)

15. Error pop up appears when running DirectX 9.0 SDK application in full screen with rotated and Aero modes on 19x10 resolution monitor.

Reference #: 203653

Driver: Graphics

Platform: Atom E6xx, US15W/WP/WPT

Package: Windows 7

Resolution: This issue occurs on the Atom E6xx B1 platform with configuration of single sDVO display in 90,180 or 270 degree rotated mode. When running the DX9SDK applications, an error message appears “Failed creating the Direct3D device” during full screen mode. This issue happens only in 19x10 or 19x12 resolution with Aero mode. Dx9SDK applications can run in full screen in basic/classic mode. This issue happens on the default graphics driver as well. This issue is caused by hardware memory limitations on rotation mode. The driver needs to create the same size of the desktop surface for the rotation process. The Aero mode requires 32-bit color depth, so in 19x12 or 19x10 resolution, the driver requests a larger memory for the 3D full screen surface which fails to be created. This issue cannot be fixed in the graphics driver.

Status: No Fix (Hardware limitation)

16. SDVO-SI1364 display corruption may occur with color correction set to minimum followed by hibernate mode.

Reference #: 203756

Driver: Graphics

Platform: Atom E6xx

Package: Windows 7

Resolution: SDVO-SI1364 display corruption may occur after changing the color correction setting to minimum followed by cycling through the hibernate mode and resuming from it. This issue was observed on Crown Bay platform with B1 silicon; it does not occur on B0 silicon platform nor US15W platform. This issue is under investigation and there is no planned workaround at this time.

Status: TBD

17. Not able to boot into Windows when using E620/E620T 0.6 GHz SKU with EMGD1.8 Gold build 2025.

Reference #: 203808

Driver: Graphics

Platform: Atom E6xx

Package: Windows 7

Resolution: On the 0.6GHz (E620, E620T) SKU processor, after installing Intel® EMGD and rebooting the system, the system may become stuck at the OS loading page and not be able to boot into Windows.

Note that Intel® EMGD for Windows* 7/Windows* Embedded Standard 7 supported Intel® Atom™ Processor E6xx SKUs include 1.0 GHz (E640), 1.3 GHz (E660) and 1.6 GHz (E680). Intel® EMGD does not support the 0.6 GHz (E620, E620T) SKU because the minimum system requirement for Microsoft Windows* 7 is 1 GHz 32-bit (x86) processor or above.

As a workaround, you are able to run the installation of Intel® EMGD on the 0.6 GHz processor, however upon system reboot after the driver installation process, the system will boot up in VGA mode with the default graphics driver. Under Device Manager a yellow exclamation (!) may appear on the Intel® Atom™ E6xx Embedded Media and Graphics Controller display adaptor to indicate the driver was not successfully installed.

Status: No Fix (OS limitation)

18. Burn In Pro V6.0 and V7.0 test forced system crash and reboot.

Reference #: 204199

Driver: Graphics

Platform: Atom E6xx

Package: Windows Embedded Standard 7

Resolution: When running Burn in Pro v7 with 2D and 3D test by either sequence/concurrently, the system will reboot or crash.

To work around this issue, there are three possible solutions:

In HKLM\System\CurrentControlSet\Control\GraphicsDrivers
- Completely disable TDR - DWORD TdrLevel = 0 or;
- Increase the time that the OS waits for the GPU - DWORD TdrDelay = 3 (default is 2 seconds, try increasing) or ;
- Increase the number of TDRs allowed in a given time period (default is 5 TDRs in 60 seconds) - DWORD TdrLimitCount = 10

Status: TBD

19. 3D Mark 03 application menu resized after test loops finished.

Reference #: 204339

Driver: Graphics

Platform: Atom E6xx

Package: Windows 7

Resolution: This sighting occurs on 3DMark 03 test loops. After the test loops are finished, the 3D Mark 03 application windows is resized. This issue has been determined to be 3DMark03 application issue that cannot be fixed by the graphics driver. Please contact Futuremark* for more details.

Status: No fix (Third-party defect)

20. When using 2GB memory for the system, the display becomes corrupted on SDVO CH7317 display upon logging into Windows.

Reference #: 204370

Driver: Graphics

Platform: Atom E6xx

Package: Windows 7

Resolution: This issue is under investigation and there is no planned workaround at this time.

Status: TBD

21. PWM frequency is wrong value for Atom E6xx.

Reference #: 204410

Driver: VBIOS

Platform: Atom E6xx, US15W/WP/WPT

Package: VBIOS

Resolution: The PWM backlight value is miscalculated in the VBIOS such that it is 1/4 of the desired value. For example, if you try to specify a backlight of 50%, you will get approximately 13% brightness. To work around this issue, please specify a brightness value 4x higher in the VBIOS than desired. A change has been identified and will be made available in a future release.

Status: Plan Fix

22. Intel® EMGD CUI/GUI does not properly send the MCCS DDC/CI messages to the monitor.

Reference #: 204421

Driver: Graphics

Platform: Atom E6xx

Package: Windows 7

Resolution: This issue is under investigation and there is no planned workaround at this time.

Status: TBD

23. With Clone mode portorder 24000, the intLVDS shows blank screen when entering CMOS setup.

Reference #: 204494

Driver: VBIOS

Platform: US15W/WP/WPT

Package: VBIOS

Resolution: This issue is under investigation and there is no planned workaround at this time.

Status: TBD

24. Video Encode does not work with Media SDK 2012.

Reference #: 204505

Driver: Graphics

Platform: Atom E6xx, US15W/WP/WPT

Package: Windows 7

Resolution: This issue is under investigation and there is no planned workaround at this time.

Status: TBD

25. Unable to change video format through CUI on a CH7022-S Video or Composite display setup.

Reference #: 204517

Driver: Graphics

Platform: Atom E6xx

Package: Windows 7

Resolution: With CH7022 S Video or Composite display setup, the Video Standard format option in CUI always defaults to NTSC-M. Changing the option is not possible as it reverts to default when you click **Apply**. This issue is under investigation and there is no planned workaround at this time.

Status: TBD

Issues Closed in Version 1.14

Issues that have been either resolved or for some other reason are no longer considered open in the current software version are included here.

Table 5. Resolved Issues

ID	Impacted Platform	Package	Errata	Status
203594	Atom E6xx, US15W/WP/ WPT	Windows 7	Black patches and corruption occurs in 2DPerf application “PerfDemo.exe” when application is running with different API.	Fixed