

Intelligent
Systems

Intel[®] Embedded Media and Graphics Driver v1.12 for Intel[®] Atom[™] Processor N2000 and D2000 Series

Specification Update

| *July 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.



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The products described in this document 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.

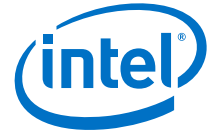
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Revision History

Date	Revision	Description
July 2012	004	Intel® Embedded Media and Graphics Driver for Intel® Atom™ Processor N2000 and D2000 Series v1.12 release
June 2012	003	Intel® Embedded Media and Graphics Driver for Intel® Atom™ Processor N2000 and D2000 Series Preliminary v1.12 release (Beta 2, Build 2502)
April 2012	002	Intel® Embedded Media and Graphics Driver for Intel® Atom™ Processor N2000 and D2000 Series Preliminary v1.12 release
December 2011	001	Initial release for the Intel® Embedded Media and Graphics Driver for Intel® Atom™ Processor N2000 and D2000 Series v1.12.



Introduction

Intel® Embedded Media and Graphics Driver (Intel® EMGD) comprise a suite of multi-platform graphics drivers 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 N2000 and D2000 Series

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* operating systems, including embedded versions of these operating systems.

The Intel Embedded Graphics Suite consists of both the Intel® EMGD graphics driver 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 for Intel® Atom™ Processor N2000 and D2000 Series User 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 1.12 of the Intel® EMGD product. It includes information on the following packages:

- Windows* XP with SP3, Windows* Embedded Standard 2009, Windows* Embedded for Point of Service (WEPOS 1.0) with SP3.
- Microsoft Windows Compact Embedded 7
- vBIOS and EFI video driver
- BIOS version V065-32:
<http://fmec.fm.intel.com/htbin/ipdcvs/viewcvs.cgi/bios/TNC/2225>
- BSP version 3.2.0:
http://pgles17.png.intel.com/SFF/WEC/WEC7/BSP_3.2/BSP_3.2.0_ALPHA_01.0/TEST_CYCLE/

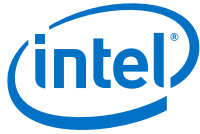


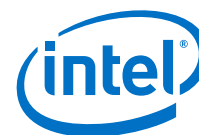
Table 1. Affected Documents, Related Documents, and Reference Information

Title	Number
<i>Intel® Embedded Media and Graphics Driver for Intel® Atom™ Processor N2000 and D2000 Series User Guide</i>	493848
<i>Intel® System Controller Hub (Intel® SCH)</i>	319537
<i>Display Panel Debugging with the Intel Graphics Memory Controller Hub</i>	305964
<i>Intel® Embedded Media and Graphics Driver for Intel® Atom™ Processor N2000 and D2000 Series Technical Product Specification (TPS)</i>	493851
<i>Framebuffer Overlay Blending Configuration and Proof of Concept with Intel® EMGD White Paper</i>	324707

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' 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](#).

Table 3. Summary Tables Legend

Status Indicator	Column	Definition
X	Driver Version	Indicates that an erratum eXists
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 for Intel® EMGD v1.12 for Atom N2000/D2000* (Sheet 1 of 2)

ID	Impacted Platform	Package	Errata	Status
204162	Atom N2000/D2000	Windows XP	Setting up internal LVDS display as extended by disconnecting VGA display followed by changing LVDS display color bit causes the LVDS display to go blank and the system to reboot.	No Fix
204171	Atom N2000/D2000	VBIOS	Abnormal clone mode behavior in Intel® Atom™ Processor N2000 and D2000 Series.	No Fix
204190	Atom N2000/D2000	Windows Embedded Compact 7	Intel® Atom™ Processor N2000 and D2000 Series running Windows Embedded Compact 7 not able to display 85Hz refresh rate resolution.	No Fix (Hardware limitation)
204212	Atom N2000/D2000	VBIOS	Intel® Atom™ Processor N2000 and D2000 Series vBIOS causes the LVDS screen to flash several times during the system boot up.	No Fix (Working as designed)
204585	Atom N2000/D2000	Windows XP	Driver displays incorrect resolution in DP-B Clone mode.	No Fix (Hardware limitation)
204589	Atom N2000/D2000	Windows XP	Display corrupted when selecting 1080i resolution for DP-B port.	TBD
204596	Atom N2000/D2000	Windows XP	Windows XP Display Properties interface does not include 640x240.	TBD
204601	Atom N2000/D2000	Windows XP	Blank Screen on secondary LVDS or eDP in Clone mode at 1280X1024 Resolution.	Plan Fix



Table 4. Errata for Intel® EMGD v1.12 for Atom N2000/D2000* (Sheet 2 of 2)

ID	Impacted Platform	Package	Errata	Status
204611	Atom N2000/D2000	VBIOS	eDP VBIOS boots up with corruption on screen using EDID 1 2 4 and 6.	No Fix (Hardware limitation)
204872	Atom N2000/D2000	Windows XP	ACPI issue - Some systems take too much time to go into hibernation.	Plan Fix
N/A	Atom N2000/D2000	All	Obsolete ERRATA.PDF in Documentation directory on pre-built and installation packages.	Plan Fix



Errata

1. Setting up internal LVDS display as extended by disconnecting VGA display followed by changing LVDS display color bit causes the LVDS display to go blank and the system to reboot.

Reference #: 204162

Driver: Graphics

Platform: Atom N2000/D2000

Package: Windows XP

Resolution: This issue can be worked around by turning off `display_detect`. When display detect is off VGA will be initialized anyway, even if the VGA cable is unplugged.

Status: No Fix

2. Abnormal clone mode behavior in Intel® Atom™ Processor N2000 and D2000 Series.

Reference #: 204171

Driver: VBIOS

Platform: Atom N2000/D2000

Package: VBIOS

Resolution: The VBIOS does not support the special mode handling required to support Clone mode in all situations. Please expect to have only a single display in standard VGA DOS mode or during XP start up. Supporting Clone mode universally is not planned at this time.

Status: No Fix

3. Intel® Atom™ Processor N2000 and D2000 Series running Windows Embedded Compact 7 not able to display 85Hz refresh rate resolution.

Reference #: 204190

Driver: Graphics

Platform: Atom N2000/D2000

Package: Windows Embedded Compact 7

Resolution: The maximum dot clock of the hardware cannot support high resolution and high refresh rates. Please use an appropriate refresh rate so as to not exceed the hardware capabilities.

Status: No Fix (Hardware limitation)



4. Intel® Atom™ Processor N2000 and D2000 Series vBIOS causes the LVDS screen to flash several times during the system boot up.

Reference #: 204212

Driver: VBIOS

Platform: Atom N2000/D2000

Package: VBIOS

Resolution: The flashing is expected behavior during mode switches. This occurs if the VBIOS does not have control of the backlight so the backlight can be switched off. If you use the recommended backlight control hardware this issue will not occur.

Status: No Fix (Working as designed)

5. Driver displays incorrect resolution in DP-B Clone mode.

Reference #: 204585

Driver: Graphics

Platform: Atom N2000/D2000

Package: Windows XP

Resolution: In clone mode with HDMI upscaling may not work in all cases. This is an expected behavior with the hardware.

Status: No Fix (Hardware limitation)

6. Display corrupted when selecting 1080i resolution for DP-B port.

Reference #: 204589

Driver: Graphics

Platform: Atom N2000/D2000

Package: Windows XP

Resolution: 1080i mode in DisplayPort may exhibit corruption. This issue will be addressed in a future release.

Status: TBD

7. Windows XP Display Properties interface does not include 640x240.

Reference #: 204596

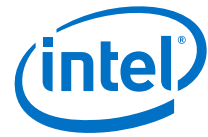
Driver: Graphics

Platform: Atom N2000/D2000

Package: Windows XP

Resolution: Windows XP does not allow resolutions below 640x480. When using a smaller resolution display use the EMGD GUI for mode and configuration settings.

Status: TBD

**8. Blank Screen on secondary LVDS or eDP in Clone mode at 1280X1024 Resolution.**

Reference #: 204601

Driver: Graphics

Platform: Atom N2000/D2000

Package: Windows Embedded Compact 7

Resolution: If LVDS or eDP is the secondary display and is 1280x1024 and in Clone mode the LVDS/eDP screen will be blank. Workaround is to either change the port order so LVDS/eDP is primary or use a different resolution or do not use Clone mode. Planned to be fixed in a future release.

Status: Plan Fix

9. eDP VBIOS boots up with corruption on screen using EDID 1 2 4 and 6.

Reference #: 204611

Driver: VBIOS

Platform: Atom N2000/D2000

Package: VBIOS

Resolution: Some eDP panels can experience distorted display when relying only on the EDID in the panel. To workaround this issue it is recommended to specify a user DTD in addition to the EDID for the driver configuration in CED. On eDP configuration page in CED under "EDID Option" you should check the "Use user-defined DTD's" then either create a custom DTD to match your panel or use one of the predefined DTDs that matches your panel parameters.

Status: No Fix (Hardware limitation)

10. ACPI issue - Some systems take too much time to go into hibernation.

Reference #: 204872

Driver: Graphics

Platform: Atom N2000/D2000

Package: Windows XP

Resolution: Going into hibernation and sometimes standby may take 5-10 seconds longer than it should. The system will successfully standby and hibernate if given time. This issue is planned to be fixed in a future version.

Status: Plan Fix

11. Obsolete ERRATA.PDF in Documentation directory on pre-built and installation packages.

Reference #: N/A

Driver: Graphics

Platform: Atom N2000/D2000

Package: All

Resolution: During an update of our source code control system, an obsolete file, ERRATA.PDF, was accidentally enabled in the driver build process. This file will be found both in the archive files under "plugins\Pre_Packaged.Drivers_1.12.0", and in installation packages you build in the "Documents" directory. It is obsolete so please delete it from your installation package, or ignore it. This file will be removed in future builds.

Status: Plan Fix



Issues Closed in Version 1.12

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
204147	Atom N2000/D2000	Windows XP	Driver does not boot up with expected DTD in Intel® Atom™ Processor N2000 and D2000 Series in Single mode.	Fixed

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