

Intel® HD Graphics

Production build# 2170

Video BIOS Release Notes

August 7, 2013

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Revision History

Date	Build Number	Description
August 7, 2013	2170	Production Version
April 9, 2013	2169	Production Version
February 28, 2013	2168	Production Version
January 17, 2013	2165	Production Version
December 7, 2012	2161	Production Version
November 23, 2012	2158	Production Version

Date	Build Number	Description
September 7, 2012	2153	Production Version
August 10, 2012	2148	Production Version
July 31, 2012	2147	Production Version
May 23, 2012	2143	Production Version
March 15, 2012	2137	Production Version
January 18, 2012	2132	Production Version
December 23, 2011	2130	Production Version
November 21, 2011	2126	Production Version
October 14, 2011	2124	Production Version
August 5, 2011	2120	Production Version
June 17, 2011	2119	Production Version

Video BIOS release contains support for the following Intel Chipsets/Processors:

- 3rd generation Intel(R) Core(TM) processors
- 2nd generation Intel(R) Core(TM) i3 processor
- 2nd generation Intel(R) Core(TM) i5 processor
- 2nd generation Intel(R) Core(TM) i5 vPro(TM) processor
- 2nd generation Intel(R) Core(TM) i7 processor
- 2nd generation Intel(R) Core(TM) i7 vPro(TM) processor

Feature Changes

Feature addition, removal or enhancements		
Reference No.	Description	Build
[DCN][3872820]	Dynamic Media Refresh Rate Switching option added in VBT (Default Enabled)	2170
[DCN][3826644]	Support for EDID over SDVO-LVDS	2168
[RCR][1024178]	Chromaticity RCR: Added options in VBT for panels 1-16 for narrow color gamut	2161
N/A	Fixed display port registers to use correct panel spec values during full link training when system boots	2158
RCR ID: 1023865	Enabled extended desktop support in VBIOS and added BMP options for the same in general VBIOS features page	2137
RCR ID: 1023597	Added PSR (Panel Self Refresh) feature setting in panel# 1-16 for eDP [Mobile only]	2137

N/A	Corrected help text in VBT for LVDS Panel Power Sequencing section	2132
Bug ID: 4108182	Removed duplicate entry from Sandybridge Toggle list table 4	2132
Bug ID: 4199347	Changed back 'Display Port Redriver Support' text to 'Dockable Port' under 'Integrated HDMI/Display Port Configuration' section of VBT	2130
N/A	Set "Hot Plug support in DOS" feature to "Disabled" by default in BMP. This is to avoid many display flicker issues and OS issues	2130
Bug ID: 4197876	Removed LVDS BIST 4f14h, 91h int10 functionality as feature is not supported on Intel platform anymore.	2126
N/A	Renamed 'Dockable Port' text to 'Display Port Redriver Support' under Integrated HDMI/Display Port Configuration	2126
N/A	Updated 'Boot Display Algorithm' table by making 'LFP' as primary display during BIOS POST	2124
N/A	Added a new BMP option "Skip VBIOS mode-set during POST" in 'General VBIOS features' page. This will avoid an extra mode-set done by VBIOS during POST. Note: Selecting this option would help improve total System BIOS POST time.	2124
N/A	Added new feature "T3 optimization" in BMP for eDP panels. When this feature is enabled, VBIOS/Graphics driver will poll for AUX soon after VDD enable until AUX passes or T3 time is reached. When disabled, VBIOS/Graphics driver will wait for complete T3 time before trying the first AUX transaction. Note: Enabling this feature would help improve total System BIOS POST time.	2124
Bug ID: 4107947	Added new field in VBT under 'General Video BIOS Features' - 'LFP Display Scaling in POST' giving user option to select following values - 'Full Screen', 'Centering' and 'Maintain Aspect Ratio'. Removed following fields from VBT: 'General Features -> Panel Fitting Initial States' & 'General Video BIOS Features -> Preserve Aspect Ratio (DOS)' for easier scaling configuration and maintain consistency with scaling options in CUI (Driver) Note: SSF generated with previous VBIOS builds may not work with 2120 and later VBIOS builds. Please create new SSF for 2120 and future VBIOS builds Please refer to VBIOS SPS for changes to System BIOS INT15 hook 5F34 and INT10 function 5f61	2120
N/A	Removed field 'Select Dongle Detect' field from Device 1/2/3 under "Integrated HDMI/Display Port Configuration with External Connectors" in VBT keeping 'Dongle Detect' field internally as always enabled Note: SSF generated with previous VBIOS builds may not work with 2120 and later VBIOS builds. Please create new SSF for 2120 and future VBIOS builds	2120
N/A	DP/HDMI interoperability support added to detect and enable DP or DP->HDMI or DP->DVI dongles plugged in to the same port runtime when the port is configured as DP with HDMI/DVI compatible	2120
RCR ID: 1023761	5F49 int15 hook extended to get initial brightness value during POST to override "POST brightness" BMP setting	2117
RCR ID: 1023731	Cross compatibility feature implemented with single VBIOS binary to support both Sandybridge and Ivy Bridge platforms with a "Chipset selection" option in BMP	2113
RCR ID: 1023713	Support for Windows Server OS (Win 2008 R2 and Hyper-V) added by providing a BMP option to disable/enable Display subsystem (headless boot) during POST and in driver	2111
RCR ID: 1023697	Added support for SDVO-DVI & SDVO-CRT	2108
RCR ID: 1023691	Added "POST Brightness" BMP option for LFP panels to configure the brightness at which VBIOS comes up during POST	2108
RCR ID: 1023682	I2C inverter type (used for Backlight control) support removed	2098
RCR ID: 1023653	5F54 int15 hook implemented to override Integrated HDMI/DP configuration parameters in BMP from System BIOS	2089

Known Issues

Known issues in Build 2170		
Reference No.	Description	Affected OS(s)

Issues Resolved

Issues Resolved in Build 2169		
Reference No.	Title	Affected OS(s)
Bug ID: 5052346	System cannot meet the Win8 Seamless Boot requirement with Intel VBIOS.	Win8
<p>Root Cause: Some specific register values between VBIOS and graphics driver were not matching causing the fast mode set failure for the first time when transitioning was happening from VBIOS to graphics driver.</p> <p>Resolution: Code changes were done in VBIOS to match the register values.</p>		

Issues Resolved in Build 2168		
Reference No.	Title	Affected OS(s)
Bug ID: 4944559	Internal display not lighting from Windows 7 or 8 install USB stick	NA
<p>Root Cause: The Link Training Pattern 2 was failing due to incorrect value comparison in the Code.</p> <p>Resolution: This bug is fixed in the code to do the right comparison of the values.</p>		

Issues Resolved in Build 2165

Reference No.	Title	Affected OS(s)
Bug ID: 4908567	[VBIOS]eDP T8 Value configuration on VBT doesn't work correctly	NA

Root Cause: T8 value is being programmed in the HW register. The delay is seen before Link training only

Resolution: Delay is programmed through software after Link training after reading value from VBT.

Issues Resolved in Build 2161

Reference No.	Title	Affected OS(s)
Bug ID: 4801177	Screen corruption issue on RedHat linux	Linux

Root Cause: Pipe frame start delay was not proper for static DRRS panels.

Resolution: Fixed code in Vbios by setting proper frame start delay for static DRRS panels.

Issues Resolved in Build 2158

Bug ID: 4731463	Boot display device combination is not following the definition with VBIOS VBT	DOS
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Root Cause: DP to CRT dongle (if present) was considered as connected even if there was no CRT monitor connected.

Resolution: Fixed code in VBIOS to read DPCD field to detect if a sink device is connected to Dp dongle or not.

Issues Resolved in Build 2153

Reference No.	Title	Affected OS(s)
Bug ID: 4731328	eDP is not detecting in Sandy Bridge Mobile after flashing 2148 VBIOS	DOS, Windows* 7
Root Cause: eDP panel power sequence was not according to the spec		
Resolution: Fixed issue in VBIOS by programming eDP panel power sequence according to spec		

Issues Resolved in Build 2148

Reference No.	Description	Affected OS(s)
Bug ID: 4729912	Incorrect commands of eDP AUX occur on VBIOS/GOP	DOS, Windows* 7
Root Cause: eDP panel power sequence was not according to the spec		
Resolution: Fixed issue in VBIOS by programming eDP panel power sequence according to spec		

Issues Resolved in Build 2147 (Current release)

Reference No.	Description	Affected OS(s)
Bug ID: 4693049	Display doesn't come up with mini DP – VGA dongle on customer system	DOS, Windows* 7
Root Cause: Aux write was failing on the dongle due to timing issues.		
Resolution: Fixed code in VBIOS by putting delay which will be executed in Aux write failing case.		
Bug ID: 4608475	KVM viewer displays wrong image size when changing modes in EFI shell	DOS, Windows* 7
Root Cause: ME Engine was not able to interperate multiple set mode calls within short time.		
Resolution: Added workaround to generate a config change notification by causing a false config change after every mode set		

Issues Resolved in Build 2143

Reference No.	Description	Affected OS(s)
Bug ID: 4566521	Display is abnormal after uninstalling graphics driver on a hot-plugged	Windows* 7

	DP panel	
<p>Root Cause: VBIOS was not able to identify the Display Port panel after it was hot plugged in OS. Because of this, VBIOS mode-set was failing after driver disable/un-install causing abnormal display</p> <p>Resolution: Fixed code in VBIOS to identify the hot-plugged DP display correctly and then perform mode-set appropriately to avoid corruption.</p>		
Bug ID: 4605784, 4564675	DP monitor shows blank screen during boot with 5m or 15m cables	Windows* 7
<p>Root Cause: VBIOS was not programming Vswing and Preemph values for display port properly in some cases causing the sporadic blank-outs</p> <p>Resolution: Fixed VBIOS code to program right Vswing and Preemph values to fix the issue</p>		
Bug ID: 4607662	Some eDP panels shows white screen when T3 optimization is enabled	DOS, Windows* 7
<p>Root Cause: VBIOS was polling for AUX when T3 optimization was enabled which was not providing sufficient time for all kinds of eDP panels to power up. This was causing sporadic blankouts on some eDP panels when T3 optimization was enabled.</p> <p>Resolution: Changed VBIOS code to poll for HPD from the panel instead of AUX (even though both are allowed from eDP spec). This change seems to be giving better results then before. However with this change, we are seeing comparatively higher post times than the older approach.</p>		
N/A (Internal only)	Added PCH reset Ack bit setting for IVB and fixed get panel number (5f61, 05) int 10 call for eDP	DOS
<p>Root Cause: This was a porting effort from other platforms. We have written a register to enable PCH reset Ack for IVB (it is already done in IVB BIOS) and fixed a code issue for get panel # for eDP through 5F61, 05 int10 call</p> <p>Resolution: Porting effort from other platforms</p>		

Issues Resolved in Build 2137		
Reference No.	Description	Affected OS(s)
Bug ID: 4564853	DP display resolution changes to 640*480 after S4 resume	Windows* 7
<p>Root Cause: VBIOS boots LFP + DP in cloned mode where LFP (or other display) is primary and DP secondary. During S4 resume, OS resume screen is high resolution and VBIOS shows display on LFP + DP. Just when the progress bar ends, OS issues a mode-3 (VGA mode) call to VBIOS. This makes VBIOS to enable only primary and disable secondary. While disabling DP, Intel VBIOS writes DPCD 600h as OFF which causes panel to issue some spurious interrupts (SPI). This makes graphics driver to assume there was a panel disconnect and panel blank out happens.</p> <p>Resolution: As a workaround to this problem, VBIOS stops writing DPCD 600h in VBIOS disable sequence. Since VBIOS don't write DPCD 600h as OFF, no SPIs generated and above issues are resolved. Assumption is no side effect shall happen due to this change.</p>		
Bug ID: 4108182	Display doesn't switch properly in graphics driver when use ACPI hotkeys " Ctrl+Alt+Shift+F4"	Windows* 7
<p>Root Cause: VBIOS default toggle list table had duplicate entries causing graphics driver not to switch between</p>		

displays using ACPI hot keys properly		
Resolution: Changed default toggle list entries in VBIOS not to have duplicate entries thus fixing the issue		
Bug ID: 4198507	Display rippling effect seen during POST and BIOS setup on HP 2335 panel when used as CRT display over DP to VGA dongle	DOS, Windows* 7
Root Cause: HP 2335 panel native timings is > 180Mhz and with DP to VGA dongle (which supports 2 lanes), max pixel clock that can be supported is 180Mhz with 8bpc. Since, VBIOS was not taking care of this limitation on that panel, and was trying to set mode with timings > 180Mhz, rippling effect was seen		
Resolution: Changed VBIOS code to fall back to 6bpc when it can't achieve the required pixel clock with 8bpc		
Bug ID: 4564817	Legacy VGA monitors do not work with DP to VGA dongles	DOS, Windows* 7
Root Cause: VBIOS was not handling EDID-less CRTs on DP to VGA dongles causing blank-outs on them		
Resolution: Fixed VBIOS code to identify DP to VGA dongles connected to the system and enumerating EDID-less CRTs connected to them		
Bug ID: 4564675	DP monitor shows blank display on BIOS menu via 5m cable.	DOS, Windows* 7
Root Cause: Legacy VBIOS code was not preserving some registers (push/pop of some registers was missed) while enabling DP, with some particular BMP settings. This caused DP to blankout		
Resolution: Fixed VBIOS code to handle the registers properly to fix the issue		

Issues Resolved in Build 2132		
Reference No.	Description	Affected OS(s)
Bug ID: 4384278	LVDS shows serious corruption when graphics driver is disabled/uninstalled	Windows* 7
Root Cause: VBIOS was not using the correct software flag register updated by graphics driver to do mode-set during graphics driver disable/un-install. This caused VBIOS to do mode-set with improper parameters resulting in corruption on LVDS panel		
Resolution: Changed VBIOS code to use the correct software flag register when when mode-set call is coming from graphics driver to VBIOS during disbale/uninstall of graphics driver		
Bug ID: 4385478	Display wobbling seen on DRRS LVDS display when switch from AC to DC mode	Windows* 7
Root Cause: VBIOS was not doing a recommended software programming for DRRS LVDS panels. Since driver also skipped doing it during fast mode set, user would observe display wobbling when switch from AC to DC mode.		
Resolution: Added software workaround in VBIOS to avoid this corruption in graphics driver when AC to DC switch happens		
Issues Resolved in Build 2130		

Reference No.	Description	Affected OS(s)
Bug ID: 4109388	Corruption observed when driver is disabled on HDMI panel with deep color enabled	Windows* 7
<p>Root Cause: VBIOS was not resetting deep color related settings done by graphicsdriver during mode-set causing corruption when graphics driver was un-installed</p> <p>Resolution: Added code to reset the deep color related settings during VBIOS mode-set</p>		
Bug ID: 4196868	Mode-set failure on running DIAG tool over CRTs when hot plugged	DOS
<p>Root Cause: VBIOS EDID read routines incorrectly reported failure even when they had passed when CRT was hot-plugged. This resulted in mode-set failure through DIAG tool</p> <p>Resolution: Fixed the return status of the EDID read routines in all cases that it used to fail</p>		
Bug ID: NA	Occasional mode set failure while palette access happens soon after mode set leading to WHQL failure in driver (not reported in VBIOS)	DOS
<p>Root Cause: Driver modeset failure and ring hangs were seen when palette acces happens soon after modeset.</p> <p>Resolution: We set a display MMIO chicken bit register during VBIOS boot and in driver boot to avoid the failure</p>		
Bug ID: N/A	FDI lane optimization not done leading to higher power consumption	DOS
<p>Root Cause: FDI lane optimization was not done in VBIOS as power consumption was not a big concern in VBIOS. Gfx driver implmented fast mode-set where they skip doing a fresh mode set and use the same timings set in VBIOS. This lead to higher power being consumed in OS</p> <p>Resolution: Implemented FDI lane optimization (to use as minimum lanes needed for the mode being set) similar to what is done in graphics driver thus reducing power usage</p>		
Bug ID: 4383777	Display brightness cannot be changed after S3 resume	DOS
<p>Root Cause: VBIOS was updating certain display MMIO scratch pad registers when 5F64, 01 int10 was called. This caused incorrect value to be returned to the caller leading to brightness value to remain unchanged</p> <p>Resolution: Fixed the issue in VBIOS to update scratch pad registers appropriately when int10 call was made</p>		
Bug ID: N/A	LVDS BIST 5F91 int10 call added back	DOS
<p>Root Cause: LVDS BIST/start stop panel test was removed as it was not complaint Intel platform spec</p> <p>Resolution: Enabled the feature back by reverting the changes to older VBIOS(2124) version with issues fixed</p>		
Issues Resolved in Build 2129		
Reference No.	Description	Affected OS(s)
Bug ID: 4198768	DP to HDMI dongle blanks out when "VESA DPMS int10" to turn on displays is executed	DOS
<p>Root Cause: DP to HDMI dongle display was not turned on due to software issue in VBIOS code</p> <p>Resolution: Fixed the issue in VBIOS to turn on all displays appropriately when int10 call is made</p>		
Issues Resolved in Build 2126		

Reference No.	Description	Affected OS(s)
Bug ID: 4198700	Display switch (5F64h, 00h) int10 call returns invalid value in AX when run after HDMI is hot plugged in DOS	DOS
<p>Root Cause: During mode-set or display switch to HDMI panel after HDMI was hotplugged in DOS was causing stack corruption in VBIOS. This resulted in invalid value being returned in AX register during 5f64h, 00h int10 call</p> <p>Resolution: Fixed the stack corruption issue in VBIOS when HDMI was hotplugged resolving the issue</p>		
Bug ID: 4198708	Graphics driver un-install with maintain aspect ratio enabled and in 1024x768 mode resulted in display corruption	Windows* 7
<p>Root Cause: VBIOS was corrupting PF registers when driver was un-installed with maintain aspect ratio enabled with partiular modes. This was resulting in display corrution after un-install</p> <p>Resolution: Fixed the PF regsiter programming in VBIOS to handle this issue</p>		
Bug ID: 4199302	VBIOS was not able to show POST screen and OS screens properly on Dell SP2309w HDMI/DVI panels which supports high resolutions	DOS, Windows* 7
<p>Root Cause: VBIOS was limiting maximum display resolution for HDMI/DVI to 1920x1440 and since the resolution of the panel was higher, VBIOS was not able to show the POST and OS screens properly</p> <p>Resolution: Fixed the issue by increasing the max. resolution supported limit for HDMI/DVI panels to 2560x1600.</p>		
Bug ID: 4199459	Basic audio programming was happening even on DVI panels with DP to DVI BMP setting and HDMI panel connected to the system	DOS
<p>Root Cause: VBIOS was ignoring the BMP setting DP to DVI and by default enabling basic audio whenever it saw a HDMI panel was connected to the system</p> <p>Resolution: Fixed the issue by having checks for BMP setting along with panel capability detection before enabling basic audio</p>		
Bug ID: 4110018	No POST issue on certain eDP panels	DOS
<p>Root Cause: VBIOS had issues in handling eDP link training issues resulting in blankouts</p> <p>Resolution: Added fixes to handle the link training issues properly</p>		
Issues Resolved in Build 2124		
Reference No.	Description	Affected OS(s)
Bug ID: 4197856, 4196935	Secondary display gets misty/Yellow colored after setting 8bpp high res. mode in DOS	POST/DOS, Windows* 7
<p>Root Cause: When dislays are booted to DOS (with clone mode during POST), and a 8bpp high res, mode set is done in DOS, secondary display shows misty/yellow color. This was because VBIOS was not programming palette registers correctly for secondary display.</p> <p>Resolution: Programmed palette registers for both primary and secondary displays properly during mode-set to avoid the discoloration of 8bpp modes in DOS</p>		
Bug ID: 2831488	Display lockup and blank out when in VGA modes with certain low latency memory configuration	POST/DOS

Root Cause: With certain low latency memory configurations display was blanking out in VGA modes which was also resulting in system hang

Resolution: Implemented a software workaround to set certain MMIO registers to overcome this VGA lockup with certain memory configurations

Issues Resolved in Build 2120

Reference No.	Description	Affected OS(s)
Bug ID: 4109573	Get Mux state and Set Mux state SG int15 calls should not be called for Ivy Bridge platforms	POST/DOS, Windows* 7

Root Cause: Only Muxless SG design is supported from Ivy Bridge platforms

Resolution: Changed VBIOS code not execute SG specific (Get/Set mux state) int15 calls from Ivy Bridge onwards

Bug ID: 4108288	Simulated BSOD screen is not seen on eDP panels in Ivy Bridge	Windows* 7
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Root Cause: VBIOS was not enabling eDP panel during mode-set call from OS during BSOD screen generation

Resolution: Fixed the code to check and enable eDP panels properly during BSOD mode-sets in VBIOS.

Bug ID: 3885640	Display corruption on LFP panels during POST and Windows* 7 boot screen	POST/DOS, Windows* 7
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Root Cause: VBIOS was not programming color depth information properly after reading from the panels's EDID.

Resolution: Fixed programming of panel color depth information (which is part of EDID 1.4 spec) after reading from LFP panel's EDID.

Issues Resolved in Build 2119

Reference No.	Description	Affected OS(s)
Bug ID: 4011160	FSDOS blank out on External Flat Panels if they are hot plugged after boot to XP	Windows* XP

Root Cause: VBIOS does not perform display detection after every mode-set. So, it is not aware of new displays plugged in after driver boot. Hence, mode-set used to fail on newly plugged in displays in OS.

Resolution: Issue is fixed by skipping display attached check during mode-sets that come from driver. This way mode-set on SD DP/HDMI is ensured to work.

Bug ID: 4011160	Backlight comes up dim when booting to LFP panels	POST/DOS, Windows* 7, Windows* XP
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Root Cause: AX/CX registers were getting corrupted causing backlight to get dim.

Resolution: Prevented VBIOS from corrupting AX/CX registers.

Bug ID: 4107838	DVI panels with pixel clock > 165 MHz in DTD1 of EDID blanks out in DOS if Preferred Timings option is selected in VBT	POST/DOS, Windows* 7, Windows* XP
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Root Cause: With VBT setting done as preferred, VBIOS always applied preferred timing for EFP displays. If preferred timing was not found for some reason (Example preferred timing is very huge (240Mhz) and cannot be applied for single channel DVI panel (as it is limited to 165Mhz)), VBIOS would fail mode-set without trying to apply best fit timings.

Resolution: VBIOS will now re-try applying best fit timings in case preferred timing is not found and fail mode-set only if best fit timings not found.

Bug ID: 4012103	White lines corruption is seen on certain eDP panels on Port D with AIO designs	POST/DOS, Windows* 7, Windows* XP
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Root Cause: Status registers were not getting updated properly during panel power on/off sequence.

Resolution: Fixed VBIOS to update status registers properly during panel power on and power off sequence.

Issues Resolved in Build 2117

Reference No.	Description	Affected OS(s)
Bug ID: 3801020	VBIOS hangs if repost done on LFP panels	DOS, Any VM which does VBIOS repost

Root Cause: Internal data variables in VBIOS are not in proper state as C000 segment is locked leading to hang

Resolution: Fixed VBIOS to handle detect if it is repost and handle the internal data variables causing the hang appropriately

Issues Resolved in Build 2113

Reference No.	Description	Affected OS(s)
Bug ID: 4010445	Removed native 8x14 font support from VBIOS to free up code space in VBIOS	DOS

Root Cause: VBIOS was having support for native 8x14 fonts which was taking up lot of code space causing space crunch to implement any new feature. Also, this is recommended in VESA spec

Resolution: Removed native 8x14 font support from VBIOS to free up code space in VBIOS

Bug ID: 4009809	[5F64, 04] Set extended Toggle Display devices int10 call was failing with toggle list 4	DOS
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Root Cause: SI register was getting corrupted in code which caused toggle list 4 to fail in certain scenarios

Resolution: Prevented VBIOS code from corrupting SI register

Bug ID: 3885482	Black screen seen during Video stress test on AUO panel	DOS
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Root Cause: VBIOS used to wait for lesser time after VGA display plane off, which was not sufficient. VGA IO transactions were taking longer time to complete than expected on certain AUO panels

Resolution: Added fix in VBIOS to wait for longer time after VGA display plane off to allow all VGA IO transactions to complete

Issues Resolved in Build 2111

Reference No.	Description	Affected OS(s)
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Bug ID: 3885646	Pink color screen was coming on HDMI display when Graphics driver is uninstalled with XvYcc enabled	Windows* 7
Root Cause: VBIOS was not clearing XvYcc related bits in hardware while doing mode-set after driver un-install		
Resolution: Cleared XvYcc related bits in VBIOS during mode sets done in VBIOS		
Bug ID: 3885515	POST not visible on certain Chi-Mei eDP panels	POST/DOS
Root Cause: VBIOS was failing EDID read on certain Chi-Mei eDP panels due to improper handling of AUX registers		
Resolution: Fixed code in VBIOS to handle eDP EDID reads by handling AUX related registers appropriately		
Bug ID: 3884990	VBIOS blankout on 1366*768 DVI displays	POST/DOS
Root Cause: VBIOS failed to apply the right timings for 1366*768 DVI panels due to miss in timing parameter calculations in code		
Resolution: Fixed code in VBIOS to calculate right timings for 1366x768 panels and program them in hardware		
Bug ID: 3884990	VBIOS blankout on 1366*768 DVI displays	POST/DOS
Root Cause: VBIOS failed to apply the right timings for 1366*768 DVI panels due to miss in timing parameter calculations in code		
Resolution: Fixed code in VBIOS to calculate right timings for 1366x768 panels and program them in hardware		

Issues Resolved in Build 2108

Reference No.	Description	Affected OS(s)
Bug ID: 3884399	Graphics driver BSOD while running 1000 cycles of S4/S5 loop test	Windows* XP, Windows* 7
Root Cause: There was occasional mode set failure in VBIOS while running S4/S5 loop test which used to cause hardware hang and eventually was causing Graphics driver also to hang and OS to BSOD		
Resolution: Corrected mode set sequence in VBIOS so that the hardware hangs are avoided		
Bug ID: 3885705	eDP panel blankout on Slim River CRBs	POST
Root Cause: eDP EDID reads were failing because of SI and DI register corruption in EDID read code		
Resolution: Avoided the SI and DI register corruption during eDP EDID reads		

Issues Resolved in Build 2104

Reference No.	Description	Affected OS(s)
Bug ID: 3884864	Garbage screen appears when Graphics driver is un-installed in SDRRS mode	Windows* 7
Root Cause: VBIOS was not clearing register bits related to SDRRS enabling during mode sets		
Resolution: Added code in VBIOS to clear the SDRRS related register bits in hardware during every mode set		

Issues Resolved in Build 2102

Reference No.	Description	Affected OS(s)
Bug ID: 3884192	DP screen flicker during POST and in CMOS menu when SSC enabled	POST/DOS
<p>Root Cause: VBIOS was not programming Display Port timings appropriately when SSC enabled</p> <p>Resolution: Corrected the DP timing calculation in code in the case where SSC is enabled</p>		
Bug ID: 3883519	Display not getting detected through a VGA to DVI cable	POST/DOS
<p>Root Cause: VBIOS was using Byte 14, Bit7 of EDID read from monitors to decide whether the display was Analog/Digital. Based on the Bit state, VBIOS used to driver VGA or DVI signals. Due to issue on certain panels, EDID returned was Analog even if the panel was used as DVI.</p> <p>Resolution: Added a workaround in VBIOS code to rely on Load sense detection for CRT and check for EDID byte14 Bit7 only if Load sense CRT detection failed</p>		
Bug ID: 3883793	CRT display blankout during Linux (RHEL) installation	Linux
<p>Root Cause: Linux was making various int10 calls to set custom timings during its installation. VBIOS was not handling programming of these custom resolution/timings correctly in code</p> <p>Resolution: Fixed VBIOS code to handle the custom timings passed by Linux during installation appropriately</p>		
n/a	Interlaced mode support added	POST/DOS
<p>Root Cause/Resolution: Added support in VBIOS for handling interlaced modes present in EDID of various displays</p>		