

BSP for Microsoft Windows* Embedded Compact 7 and 2013 for Mobile Intel® 4th Generation Core™ Processors and Intel® 8 Series Chipsets

Release Notes

February 2015

Software Release: Gold Release



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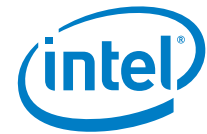
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Revision History

| Date | Revision | Description |
|---------------|----------|--|
| February 2015 | 001 | Initial Release. Corresponds to Gold software version. |

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1.0 Introduction

This document provides system requirements, installation instructions, issues, limitations, and legal information for the release of this software. You may find other related documentation for this release as follows:

- *BSP for Windows* Embedded Compact 7 and WEC2013 for Intel® 4th Generation Core™ Processors and Intel® 8 Series Chipsets, User Guide* – refer to [Table 2](#).
- *BSP for Microsoft Windows* Embedded Compact 7 and 2013 Gold Release for Mobile Intel® 4th Generation Core™ Processors and Intel® 8 Series Chipsets, Software Developer Guide* - refer to [Table 2](#).

1.1 Intended Audience

These release notes are intended for ISVs, OEMs and ODMs

1.2 Customer Support

For technical support, including answers to questions not addressed in this product, visit the technical support forum, FAQs, and other support information at: <http://www.intel.com/software/products/support/>.

Please remember to register your product at <https://registrationcenter.intel.com/> by providing your email address. Registration entitles you to free technical support, product updates and upgrades for the duration of the support term. It also helps Intel recognize you as a valued customer in the support forum.

Note: If your distributor provides technical support for this product, please contact them for support rather than Intel.

To submit an issue, please use Intel® Premier Support.

For more information on registering to Intel Premier Support, go to: <http://software.intel.com/en-us/articles/performance-tools-for-software-developers-intel-premier-support>



1.3 Acronyms and Terms

The following acronyms and terms are used in this document (arranged in alphabetic order):

Table 1. Acronyms and Terms

| Term | Description |
|------------------|--|
| BSOD | Blue Screen of Death (Stop Error) |
| GPIO | General Purpose Input/Output |
| HS-UART | High Speed Universal Asynchronous Receiver/Transmitter |
| HSIC | High Speed Inter-Chip |
| I ² C | Inter-Integrated Circuit |
| ISP | Image Signal Processor for Camera |
| KSC | Keyboard and System Controller |
| SPI | Serial Peripheral Interface |
| SUT | System Under Test |
| WHCK | Microsoft Windows Hardware Certification Kit |

Table 2. Reference Documents

| Document | Document No./Location |
|---|-----------------------|
| <i>BSP for Windows* Embedded Compact 7 and WEC2013 for Intel® 4th Generation Core™ Processors and Intel® 8 Series Chipsets, User Guide</i> | 332072 |
| <i>BSP for Microsoft Windows* Embedded Compact 7 and 2013 Gold Release for Mobile Intel® 4th Generation Core™ Processors and Intel® 8 Series Chipsets, Software Developer Guide</i> | 332077 |



2.0 Release Content

[Table 3](#) lists the contents of this release Package.

Table 3. Contents of Release Package

| Release Collaterals | Version | Release Date |
|---|-------------|--------------|
| Intel Processor WEC IO BSP.exe | v3.4.1.0.48 | January 2015 |
| HSW WEC IO Gold Internal Release Notes | 1.0 | January 2015 |
| HSW WEC IO Gold Internal User Guide | 1.0 | January 2015 |
| HSW WEC IO Gold Internal Developer Manual | 1.0 | January 2015 |

2.1 The IO BSP Installer Package Contents

Table 4 lists the drivers contained in the IO BSP Installer Package.

Table 4. Components of this release

| No. | Software Driver Installed on target system | WEC*7 | WEC*2013 |
|-----|--|-------|----------|
| 1 | GPIO | Yes | Yes |
| 2 | HD Audio | Yes | Yes |
| 3 | PCIe* KITL | Yes | Yes |
| 4 | SATA3 IDE | Yes | Yes |
| 5 | SMP (Multicore) | Yes | Yes |
| 6 | USB 3.0 | Yes | Yes |

2.2 External Dependencies

NOTES: None



3.0 What's New in This Release

3.1 New Features

- GPIO Driver
 - Support GPIO pin configuration as input or output pin
 - Support Multiplexing for selected GPIO pin
 - Support GPIO pin level configuration to high or low (enable or disable)
 - Support query for GPIO pin setting.
- HD Audio Driver
 - Support High Definition Audio controller
 - Support ALC262 on Walnut Canyon platform
 - Support WEC software mixer
 - Support hardware mixer
 - Support master volume and mute control for audio output and audio input.
 - Support audio playback in stereo
 - Support 1 independent audio recording

3.2 Unsupported Features

- SATA – SATA AHCI mode is not supported.
- HD Audio – Mono recording is not supported

3.3 Discontinued Features

None

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4.0 Feature Limitations

4.1 GPIO Driver

None

4.2 HD Audio Driver

- HD Audio driver only support the base rates recording of 44.1 kHz and 48 kHz given by the HDA Controller.
- Recording mute is not supported.

Dependent on Realtek ALC262 HD Audio Codec:

- Only supports 44.1/48/96/192kHz sample rate.
- Only supports 16/20/24-bit PCM for stereo audio playback and multiply input streaming.

Dependent on Haswell Walnut Canyon platform:

- Only support three ports on panel, HeadPhone / Line / MIC.
- Only support stereo audio for each port. Don't support Mono Input/Output.

4.3 Operating System

WEC7*/WEC2013* OS limitation requires a system restart when a registry key is changed.

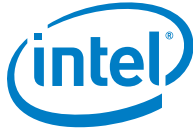
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5.0 Fixed Issues

Table 5. Fixed Issues

| Issue # | Description of Issue | Implication (Impact) | Resolution |
|-----------------------|--|--|---|
| 5221123 (IO) | Failed CETK Test on Measure Memory Performance for WEC 7* on HSW-Walnut Canyon Platform | Memory test in CETK will fail | Fixed in workaround on ioctl.cpp |
| 5221141 (IO) | Failed CETK Test on Measure Memory Performance for WEC 2013* on HSW-Walnut Canyon Platform | Memory test in CETK will fail | Update Platform Builder IOCTL |
| 5221142 (IO) | Failed CETK Test on Full-duplex Audio Playback Verification for WEC*2013 on HSW-Walnut Canyon Platform | Memory test This document provides system requirements, installation instructions, issues and limitations, and legal information for the release of this software: in CETK will fail | Update Platform Builder IOCTL |
| 5221143 (IO) | Failed CETK Test on USB Host Driver Verification for WEC2013* on HSW-Walnut Canyon Platform | Memory test in CETK will fail | Update Platform Builder IOCTL |
| 5221164 (BIOS) | Onboard graphics is not functioning with 135.01 Haswell BIOS | VGA will not have display | Change to BDW BIOS v80 onwards |
| 5221166 (Platform) | PCIe* port J6C2 and J6C1 is not working. Graphics card and NIC are not detected when plugging in these two slots | Graphic card and NIC cannot be used on PCIe port J6C2 and J6C1 | J6C2 Digital Display interface connector is not in IO Windows POR. Current Working PCIe* slot after rework: J5C1 - PEG , J6C1 - Slot 1 , J6D1 - Slot 2, J7C1 - Slot 3, J7D1 - Slot 4 , J8C1 - Slot 5 |
| 5221169 (IO) | [WEC7*] System hang after pressing Num lock or Caps lock with USB keyboard | Num lock or Caps lock cannot be press | Change to BDW BIOS v80 |
| 5221170 (Platform) | Walnut Canyon PCIe* Graphics Card and HDMI display breaks USB ports (BETA_2013_APR_18) | USB ports cannot be used together with PCIe Graphics Card and HDMI | Change to BDW BIOS v80 |
| 5221182 (IO) | HSW – WEC7* - USB 3.0 does not meet required data write speed | USB3.0 specification is not achieve | Not a Bug |



| Issue # | Description of Issue | Implication (Impact) | Resolution |
|-----------------------|--|---|--|
| 5221183 (IO) | Walnut Canyon – WEC7* - SUT hangs during CETK's Measure Memory Performance Test | Reboot is needed to start back SUT after hang | No longer can reproduce on latest BSP. |
| 5221191 (Platform) | Walnut Canyon - SATA drives do not work when connected to eSATA port | SATA drives can only be used on SATA port and not eSATA | Platform rework needs to be done to enable eSATA. |
| 5221195 (IO) | [WEC2013*] USB 3.0 Read Performance not up to expected standard | USB3.0 specification is not achieve | Test application issues are resolved. |
| 5221189 (IO) | ICHHDA in Haswell Alpha BSP breaks EMGD functionality after performing integration | OS with EMGD unable to boot | Change to BDW BIOS v94.1 |
| 5221192 (IO) | [WEC7*/WEC2013*] WEC OS available system memory is too low (200~250MB) | Cannot open too many applications at same time | Fixed in IO Driver MR1 WW36.4 Release |
| 5221199 (BIOS) | PS/2 fail functioning intermittently in BIOS stage | PS/2 cannot be used in BIOS | No longer can reproduce on latest BIOS BDW 94.1 |
| 5221204 (BIOS) | [BIOS] Onboard audio devices missing after updating BIOS to BDW_80_00 | System will have no audio | Fixed in BIOS BDW 94.1 |
| 5221223 (IO) | Unable to mute and control microphone recording volume | Recording volume cannot be adjust and mute | Fixed in IO Driver Beta |
| 5221239 (IO) | [WEC2013*][Walnut Canyon] USB ports are not working with IO Driver 09-22 | Any USB device cannot be used on the system | Fixed in IO Driver Beta |
| 5221240 (BIOS) | [Walnut Canyon][BIOS BDW_94] SUT shuts down after 30 mins regardless of activity | System cannot be up for more than 30 minutes | Fixed in BIOS BDW 94.1 |
| 5221248 (IO) | [WEC2013*]Adjusting audio slider also randomly adjusts Left-Right balance | Left-Right balance affected by volume adjust | Fixed in IO Driver Beta |
| 5221249 (IO) | [WEC2013*][Walnut Canyon]Adjusting volume slider continuously kills audio functionality | Audio cannot be used and system restart needed | Fixed in IO Driver Beta |
| 5221179 (IO) | WEC2013* - Intel BSP does not install to WinCE800 folder by default | Intel BSP files cannot be found in WinCE800 folder | Beta installer allows user to choose the destination folder. |
| 5221247 (IO) | [WEC7*/2013] Audio recording recorded a lot of noise | Recording voice cannot be hear clearly | Fix in Beta BSP. No more noise when record audio |
| 5221251 (IO) | [WEC7*/2013][Walnut Canyon] USB2.0 ports not functioning after unplug USB3.0 thumbdrive from | All USB2.0 port cannot be used. | Fix in Beta BSP. USB2.0 can work normally |

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| Issue # | Description of Issue | Implication (Impact) | Resolution |
|-------------------|--|---|----------------------|
| | bottom USB3.0 port | | |
| 5221185 (IO) | WEC2013* - e1000 NIC - New drivers required | E1000 NIC cannot be used in WEC2013 | Fixed |
| 5221262 (Graphic) | OS intermittently blank screen on VGA when integrated with EMGD driver | OS have difficulty to display with VGA | Fixed in Gold |
| 5221279 (Graphic) | [WEC7*]No display when WEC7 loaded with KITL in debug mode | OS will show blank screen in debug mode | Boot in release mode |

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6.0 Errata and Known Issues

This section lists Errata and known and non-Intel issues.

6.1 Errata and Known Issues

Table 6. Errata and Known Issues

| Issue # | Description of Issue | Implication (Impact) | Resolution |
|-------------------|---|--|--|
| 5221222 (IO) | Unable to record waveform audio with certain formats. (Less than 16 bits, Lower than 44.1 kHz sampling rate and Less than two channels) | Certain audio recording format will have noise or cannot record | Will not fix |
| 5221165 (IO) | Bluetooth icon in network connection won't disappear after plug unplugged more than two times | Bluetooth* transfer cannot be done | Don't plug and unplug device unnecessarily |
| 5221181 (BIOS) | WEC7* - Poor performance with PCIe* GFX card | Os lagging if boot up with PCIe* GFX card | Use onboard graphics |
| 5221184 (BIOS) | Walnut Canyon - USB Smart Auto mode does not switch to xHCI | When smart auto is used, USB will always work as EHCI (USB2.0) | Manually change in BIOS to XHCI (USB3.0) Enable |
| 5221194 (IO) | Wireless driver not functioning in WEC*2013 | Wireless USB cannot be used in WEC2013 | Will not fix. |
| 5221244 (BIOS) | [HSW][WEC7*/2013]Low system performance when integrate WEC*2013 with EMGD driver and using latest BIOS. | Os lagging if image integrated with EMGD | Manually change in BIOS to XHCI (USB3.0) Enable |
| 5221254 (BIOS) | [HSW][WEC7*/2013]HD Audio failed to function when XHCI mode is set to 'Smart Auto' or 'Auto' | No audio in OS if BIOS XHCI mode is set to 'Smart Auto' or 'Auto' | Manually change in BIOS to XHCI (USB3.0) Enable |
| 5221256 (IO) | [HSW][WEC7*/2013]Recorded audio slow down when record with mono channel | Audio corrupted if record with mono channel | Will not fix. Hardware limitation. |
| 5221263 (IO) | USB and Audio do not work when booting SUT with KITL in debug mode | In debug mode, USB and audio not working | Boot in release mode |
| 5221264 (BIOS) | [HSW][WEC2013*]USB not functioning when XHCI mode in BIOS is set to 'Smart Auto' or 'Auto'. | USB not functioning in OS if BIOS XHCI mode is set to 'Smart Auto' or 'Auto' | Manually change in BIOS to XHCI (USB3.0) Enable |



| Issue # | Description of Issue | Implication (Impact) | Resolution |
|-----------------|--|---|---|
| 5221288 (IO) | [HSW][WEC2013*] Audio recording does not work when record audio using microphone | No audio can be heard from recorded file using microphone | Microphone's gain is very low, so the sound is very light. So we need to increase the gain of microphone to amplify the sound from Microphone. Increase the input gain of MIC to 0xFFFF |

6.2 Non-Intel Issues

| Issue # | Description of Issue | Implication (Impact) | Resolution |
|----------------------|---|---|---|
| 4635030 (Closed) | Unable to create partition on SD card and USB pendrive (WEC*7 Monthly Update March 2013) | User will not be able to create partition on SD card and USB pendrive from WEC*7 Storage Manager. | WEC*7 Monthly Update April 2014 onwards. |
| 4994595 (Pending) | File system in Storage Manager did not reflect to actual file system type on the storage device. B3-I | The file format is always showing in exFat. | Device is still functional. User may check file system of storage device in another Windows* system i.e Win*7, Win*8. |

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7.0 Best Known Configuration

This section provides a summary of the best known configuration.

7.1 Hardware Configuration

Table 7. Hardware Configuration

| Category | Description | Rev/Type/Source |
|----------|--|-----------------|
| CRB | Walnut Canyon | FAB3 REV03 |
| SoC | 4 th Generation Intel® Core™ i5-4400E CPU @2.70GH (Formerly Known as Haswell) | C0 |
| PCH | Lynx Point* | C2 QM87 |
| Display | VGA (WEC*7) HDMI (WEC*2013) | |
| Memory | 4 GB DDR3 | |

7.2 Firmware Configuration

Table 8. Firmware Configuration

| Category | Description | Rev/Type/Source |
|----------|----------------------------------|-----------------|
| CRB BIOS | BDW-E1N1.86C.0094.R01.1410132152 | Intel |
| KSC | V1.17 | Intel |

7.3 Driver/Operating System Configuration

Table 9. Driver/Operating System Configuration

| Category | Description | Rev/Type/Source |
|------------------|---|-----------------|
| Operating System | WEC7* Official Release, Update August 2014 (7.1.2843) WEC2013* Official Release, Update August 2014 (8.0.6211) | MSDN* |



| Category | Description | Rev/Type/Source |
|-------------|---|-----------------|
| I/O Driver | Intel Processor WEC*7 I/O BSP.msi | Intel |
| EMGD Driver | Intel_HSW_WEC7_EMGD_V37.16.0_RC_2015-01-07_2002 Intel_HSW_WEC13_EMGD_V37.16.0_RC_2015-01-07_2002 | Intel |

7.4 Recommended BIOS Configuration

[Table 10](#) contains the recommended BIOS Configuration.

Table 10. Best Known BIOS Configuration

| BIOS Selection | Configuration |
|----------------|---|
| XHCI Mode | Intel Advanced Menu --> PCH-IO Configuration --> USB Configuration --> XHCI Mode --> Enabled |

7.5 Tested Features

Features tested with Intel WEC*7 IO BSP and Windows* Catalog are listed in [Table 11](#).

These features may have limitations and known issues. See [Section 6.0 Errata and Known Issues](#) for more details.

Table 11. Tested Features

| Area | Feature | Source | WEC*7 Pass | WEC*2013Pass |
|-------------------|-------------------------|---------------------|------------|--------------|
| CEPC Boot Loaders | WCELDR | WEC7* Inbox feature | Pass | Pass |
| | LoadCEPC | WEC7* Inbox feature | Pass | Pass |
| | Eboot | Intel BSP | Pass | Pass |
| | UEFI Loader | Intel BSP | | |
| SIO | Legacy Serial COM port | Intel BSP | Pass | Pass |
| | PS/2 Mouse and Keyboard | WEC7* Inbox driver | Pass | Pass |



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| Area | Feature | Source | WEC*7 Pass | WEC*2013Pass |
|---|---|-------------------------|------------|--------------|
| USB | General USB 2.0 feature Note: USB WIFI tested with: SparkLAN-Ralink RT2870 USB WIFI dongle with EHCI mode | WEC*7 Inbox driver | Pass | Pass |
| | General USB 3.0 feature Note: USB WIFI* tested with: VNT6656 USB WIFI dongle with EHCI and XHCI mode. | Intel BSP | Pass | Pass |
| | USB2.0 Boot | WEC7 Inbox driver | Pass | Pass |
| SATA | General SATA IDE feature Support on ATAPI driver for 2x SATA port | Intel BSP | Pass | Pass |
| SMP | Symmetric Multi-Processing | Intel BSP | Pass | Pass |
| PCIe | General PCIe* feature | WEC7* Inbox driver | Pass | Pass |
| | KITL | Intel BSP | Pass | Pass |
| | Ethernet Tested with KITL Ethernet Debug Driver for PCIe* Intel/Pro 1000 PT Server Ethernet Adapter and polling mode KITL is supported. | Integrated Intel Driver | Pass | Pass |
| NOTES: Tested USB WIFI* for WEC*2013 as device driver not available at the time of testing | | | | |
| High Definition Audio | HD Audio Controller Support | Intel BSP | Pass | Pass |
| | ALC262 Support | | | |
| | WEC7* Software Mixer | | | |
| | Master Volume/Mute control | | | |



| Area | Feature | Source | WEC*7 Pass | WEC*2013Pass |
|-----------------------|---|-----------|------------|--------------|
| High Definition Audio | Audio stereo playback | Intel BSP | Pass | Pass |
| | Audio recording | | | |
| | 2 Independent Audio Playback 2x audio playback outputs at Port-C and Port-D and 1x audio recording input at Port F on Bayley Bay Platform. | | | |
| GPIO | Direction Setting | Intel BSP | Pass | Pass |
| | Level Value Setting | | | |
| | Pin Setting Query | | | |
| | Multiplexing Setting | | | |

NOTES:

1. SATA Support on ATAPI driver for 2x SATA port. SATA AHCI mode is not supported.
2. USB Support WIFI* via SparkLAN-Ralink RT2870 USB WIFI* dongle with EHCI mode and VNT6656 USB WIFI* dongle with EHCI and XHCI mode.
3. High Definition Audio Support 2x audio playback outputs at Port-C and Port-D and 1x audio recording input at Port F.



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8.0 Hardware and Software Compatibility

This section lists the Intel hardware and software that this release is compatible with:

Mobile Intel® 4th Generation Core™ Processors and Intel® 8 Series Chipsets

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