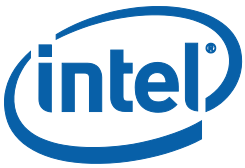


Microsoft Windows* 8.1 (Windows 8.1, Windows Embedded 8.1 Industry) 32 & 64 bit for Intel® Atom™ Processor E3800 Product Family/ Intel® Celeron® Processor N2807/N2930/J1900

User Guide

July 2014

Version: 1.0.0 Gold

Document Number: 550201-1.0

Contents

Revision History

Revision Number	Description	Revision Date
1.0	Gold Release	June 2014

1 Introduction

1.1 Scope of document

This document provides important information for installing Intel's Board Support Package (BSP) for the Microsoft Windows 8.1 and Windows Embedded Industrial 8.1. It covers the driver interfaces, errata and known issues, and best known methods.

This document is intended for OEMs and ODMs that are enabling Windows 8.1 and WEI8.1 drivers with the Intel® Atom™ Processor E3800 Product Family/ Intel® Celeron® Processor N2807/N2930/J1900.

This document also includes information about Windows 8.1 Inbox drivers that have been validated on Intel® Atom™ Processor E3800 Product Family/ Intel® Celeron® Processor N2807/N2930/J1900.

1.2 System Requirements

The following operating systems are supported:

- Windows 8.1 Operating System (both 32-bit and 64-bit versions)
- Windows Embedded Industrial 8.1 Operating System (both 32- and 64-bit versions)

1.3 Acronyms and Terminology

Term	Description
BSOD	Blue Screen of Death (Stop Error)
GPIO	General Purpose Input/Output
I^2C	Inter-Integrated Circuit
HS-UART	High Speed Universal Asynchronous Receiver/Transmitter
SPI	Serial Peripheral Interface
SUT	System Under Test
BKM	Best Known Method

2 Release Summary

2.1 Release Details

Driver Version: Refer to Driver/OS Configuration.

2.2 Release Contents

- Intel® Processor Win8.1 IO drivers – Software Developer's Manual – Please refer to Intel® Processor Win8 IO drivers – Software Developer's Manual
- Intel® Processor Win8.1 IO drivers - Release Notes
- Intel® Software License Agreement

3 Best Known Configuration

Hardware Configuration

Hardware Category	Description	Rev / Type / Source
CRB	Bayley Bay Bakersport	FAB3 REV03 FABB
SOC	Intel® Atom™ Processor E3800 Product Family Intel® Celeron® Processor N2807/N2930/ J1900	B3 (D0 Stepping NOT SUPPORTED-will be released separately) B3/C0
Display	VGA	
Memory	Bayley Bay: 4 GB DDR3 (2x2GB) Bakersport: 2 GB DDR3 (1x2GB with ECC)	

Firmware Configuration

CRB BIOS	Win8.1 / WEI8.1 32 Bit: BYTICRB_IA32_R_SPI_0080_21_SeC_Enable Win8 / Win8.1 / WES8 64 Bit: BYTICRB_IA64_R_SPI_0080_21_SeC_Enable	Intel
KSC	v03.12	Intel

Driver / OS Configuration

Operating System	Windows 8.1 Build 9600 Windows Embedded 8.1 Industry	MSDN
Graphics Driver	15.33.13.3408 / 15.33.19.64.3540	VIP 58683 (32b)/ VIP 59720 (64b)
GPIO Driver	603.9600.1948.30590	VIP 59771 (32b)/ VIP 101301 (64b)
I^2C Driver	603.9600.1948.29470	
SPI Driver	603.9600.1948.28229	
HS-UART Driver	603.9600.1948.32979	
Chipset INF	9.4.4.1006	VIP 58683 (32b)/ VIP 59720 (64b)

Note: To download the graphics driver, click the VIP link in the above table (login required).

4 Ready Features

Area	Feature	Source	Ready
USB	General USB 2.0 feature	Win8.1 inbox driver	Yes
	General USB 3.0 feature	Win8.1 inbox driver	Yes
	USB2.0 Boot	Win8.1 Inbox driver	Yes
SATA 2.0	General SATA feature	Win8.1 Inbox driver	Yes
PCIe*	General PCIe feature	Win8.1 Inbox driver	Yes
High Definition Audio	General HD Audio feature	Win8.1 Inbox driver	Yes
	HDMI Audio	Integrated in Intel GFX driver	Yes
SD	General SD card feature	Win8.1 Inbox driver	Yes
eMMC 4.5	General MMC feature	Win8.1 Inbox driver	Yes
Power Management	Power Mgmt S0 and S5	N/A	Yes
	Power Mgmt Sleep S3	N/A	Yes
	Power Mgmt Hibernate S4	N/A	Yes
GPIO	Direction Setting	Intel	Yes
	Level Value Setting		Yes
I²C	Standard Mode (100 KBps)	Intel	Yes
	Fast Mode (400 KBps)		Yes
	DMA Support		No
SPI	SPI Mode 0,1,2,3	Intel	Yes
	Transfer rate support on min=100 KBps Max=15 MBps		Yes
	DMA Support		No
HS-UART	Baud rate support 300-921600, 1M, 2M 3M and 4M	Intel	Yes
	Data size 5, 6, 7, 8-bit		Yes
	Odd, even, none parity		Yes
	1, 1.5, and 2 stop bits		Yes
	Hardware & No flow control		Yes
	DMA Support		No

Note: For all issues, please refer to the document that comes with the packages.

5 Errata and Known Issues

5.1 Errata (Will not fix)

Issue #	Description	Impact	Recommendation
4634526	Recorded sound is low and not clear	Voices recording sound is low and not clear	User can adjust the Microphone Boost Setting in windows to increase the recording volume.
4634926	Win8 HS-UART with DMA gets unexpected failed test cases when running UTS Test suite	UTS Test cases fails	No resolution from Intel as DMA driver I Microsoft Inbox driver.
4634818	System re-enumeration and disconnect on HSIC device	File transfer fail on HSIC device when any plug/unplug on USB2.0 bottom port	Do not plug/unplug on USB2.0 bottom port during file transfer on HSIC device.
4634569	Kingston DataTraveler Elite 3.0 Not Working on USB2	Failed to detect USB thumb drive	Avoid using Kingston DataTraveler Elite 3.0 on USB2 (lower right USB2.0 port) on Bayley Bay and Bakersport platform

5.2 Known Issues

Issue #	Description	Impact	Recommendation
4634845	System unable to wake up from S3 when CPU core = 1	System failed to wake up after S3 when change CPU core to 1	IOTG BIOS issue. Do not set CPU core =1
4634792	One bit is occasionally wrong in SPI	1 bit out of 1000 bits is corrupted on Bayley Bay platform.	Use Bakersport platform. This issue is under investigation.
4634827	Safely remove icon did not appear on taskbar notification area when a USB pen drive is attached	OS does not show remove icon in the task bar.	Suspect issue caused by Windows Inbox driver. Workaround is to eject removable disk from file explorer.
4634826	USB Keyboard or mouse is unable to wake the system from sleep and hibernate	System failed to wake up with mouse or keyboard attached to the top USB2.0 port on Bayley Bay and Bakersport.	Wake the system with the power switch.

4635042	Unable to open HSUART Communication Port	User unable to use the HSUART communication	
4635036	MMC card not detected	MMC card is not detected when inserted into the SD Card Slot	
4635035	SD card not detected in Disk Management	Using Inbox SD Card, for some of the card, it is not detectable via Disk management console.	

6 Limitations

1. GPIO multiplexing and pin query limitation. Microsoft GPIO driver framework does not expose the interface to user to set GPIO pin's multiplexing and query it. Every pin's functionality must be fixed by BIOS.

2. HS-UART Software Flow Control

3. Legacy graphic card not supported in 64-bit IOTG BIOS

4. SD OS Boot is not supported.

5. The SD Host Controller is based on the SD rev 3.00 spec. And, it might not work with another higher version specs.

7 Platform BKMs

7.1 How to Rework Bakersport Fab B I²C Port 6

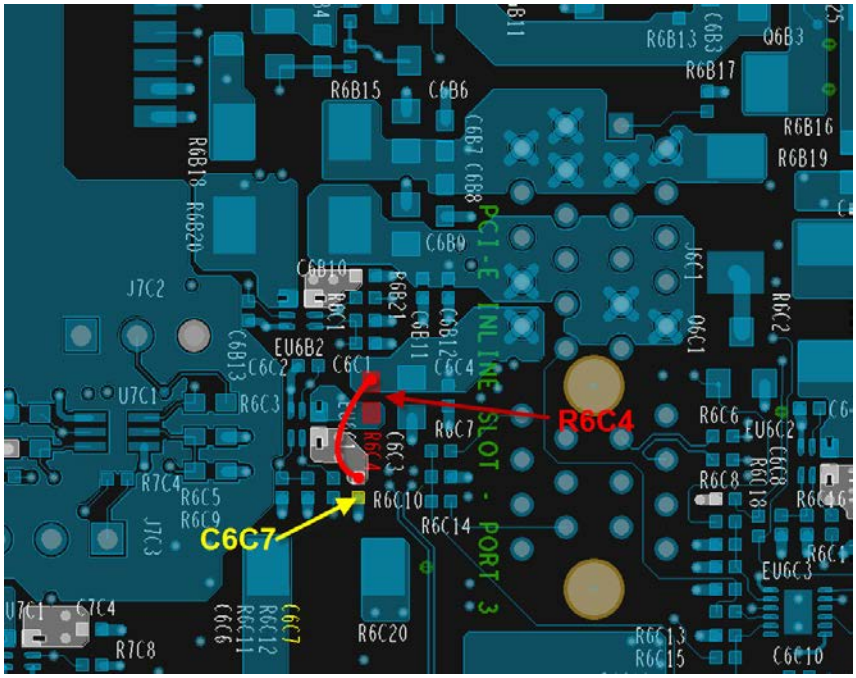
By default, Bakersport Fab B has an issue with I²C port 6. This port fails to read and write due to an incorrect resistor connection.

Rework Steps	1) UnStuff R5H9, R5H12, R5H8, R5H10 2) Stuff R5H4 (22 ohms) 3) Stuff R5H3 (22 ohms)
Affected Platform	Bakersport boards **(PBA# G72250-200 Rev 02) (Fab B)**

7.2 How to Rework Bayley Bay Fab 3 PCI-E INLI Slot Port 3

By default, Bayley Bay Fab 03 has an issue with PCI-E Slot 3. This PCIe slot fails to detect network card after shutdown followed by power up (without switch off the main power)

Rework Steps	1. Remove R6C4 2. Add jumper wire from C6C7 to R6C4 as shown below.
Reasons for the rework:	NIC cards don't get recognized in Windows while the jumper block (J7C2) is configured to Desktop mode, pins [1–2]. Failure mode occurs in PCI-E Slot 3
Affected Platform	Bayley Bay boards Fab 3 (IOTG configured) platforms only



7.3 How to Rework Bakersport Fab B USB 3.0 Port

By default, Bakersport Fab B has an issue with USB 3.0 port. This port fails to read several USB 3.0 thumb drives and couldn't achieve USB 3.0 performance.

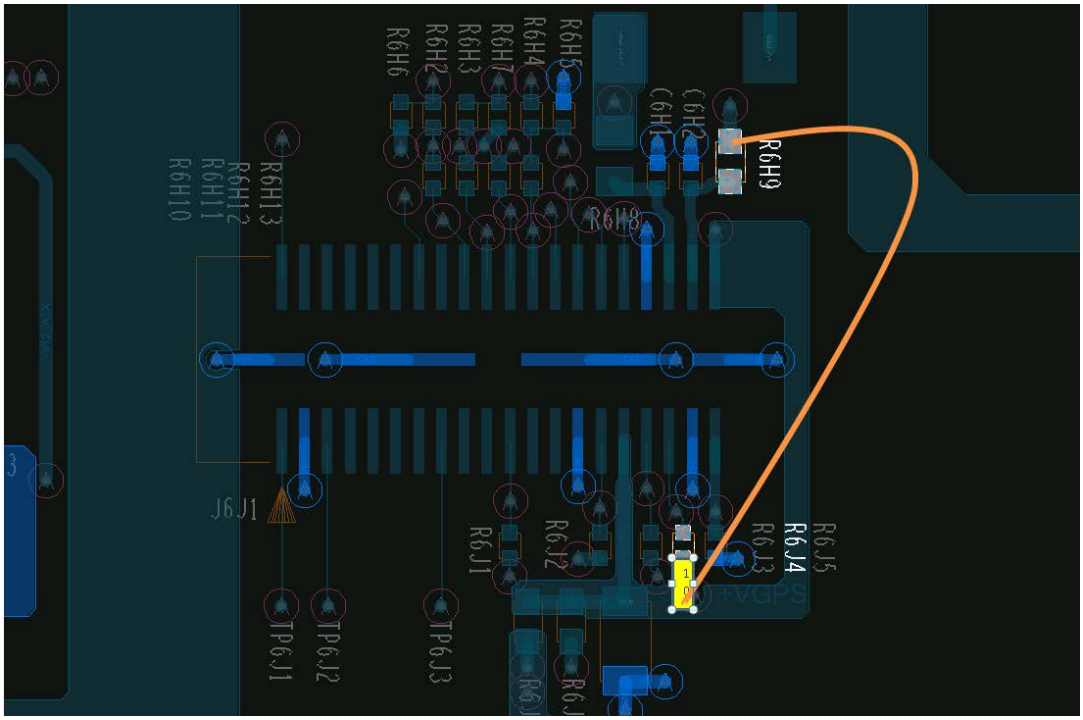
Rework Steps	1) UnStuff choke on L8A2 2) Stuff R8A4 and R8A3 (0 ohms)
Affected Platform	Bakersport boards **(PBA# G72250-200 Rev 02) (Fab B)**

Note: Patriot Memory 64GB and EDGE DiskGo* 32GB thumb drive are not recommended for use in EHCI mode.

7.4 How to Rework I2C in Bakersport and Bayley Bay

By default, Bakersport Fab B has an issue with I^2C port 6. This port fails to read and write due to incorrect resistor connection.

Rework Steps	- Place a 10K resistor followed by a wire from R6J4 to R6H9 See below rework layout, yellow box is the 10K PU resistor followed by orange wire to R6H9
Affected Platform	Bakersport boards **(PBA# G72250-200 Rev 02) (Fab B)** Bayley Bay boards Fab 3 (IOTG configured) platforms only


R6H5
R6H4
R6H7
R6H3
R6H2
R6H6
C6H1
C6H2
R6H9
R6H8
R6H13
R6H12
R6H11
R6H10
J6J1
R6J1
R6J2
R6J3
R6J4
R6J5
TP6J1
TP6J2
TP6J3
+VGPS

8 Software Driver BKMs

8.1 How to Install

Please refer to the packages for installation guide.