



# Intel<sup>®</sup> EP80579 Software Drivers for Embedded Applications

Package Version 1.0

**Release Notes**

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*October 2008*



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## Contents

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<b>1</b>	<b>Description of Release</b> .....	5
1.1	New Features .....	5
1.2	Supported Operating Systems.....	5
1.3	Supported Component Versions.....	5
1.3.1	Version Numbering Scheme .....	5
1.3.2	Package Versions .....	6
1.3.3	BIOS/Firmware Version .....	6
<b>2</b>	<b>Known Issues - Embedded</b> .....	6
<b>3</b>	<b>Related Documentation</b> .....	13
3.1	Where to Find Current Software and Documentation .....	13
3.2	Embedded Documents .....	14

## Tables

1	Package Versions .....	6
2	Summary of Embedded Software Open Issues .....	6



## Revision History

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Date	Revision	Description
2 October 2008	005	Updated BIOS version: TRXTG060.ROM
23 September 2008	004	Updated BIOS version: TRXTG059.ROM
12 September 2008	003	Updated Package Versions: Embedded.X.1.0.70 (supports National Semiconductor* DP83848I PHY) and Embedded.L.1.0.75 (supports Broadcom* BCM5481 PHY)
22 August 2008	002	Updated BIOS version: TRXTG058.ROM
13 August 2008	001	Initial release of this document.

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# 1 Description of Release

This document describes extensions to and deviations from the release functionality described in Intel® EP80579 Software Drivers for Embedded Applications Programmer's Guide and API Reference Manual.

For instructions on loading and running the release, see the Getting Started Guide for your operating system. See [Section 3, "Related Documentation"](#) on page 13 for details.

These release notes may also include known issues with third-party or reference platform components that affect the operation of the software.

*Note:* The "Intel® EP80579 Integrated Processor with Intel® QuickAssist Technology Development Board" is referred to as "development board" throughout this document.

## 1.1 New Features

- The Linux\* software package has been updated to include support for the National Semiconductor\* DP83848I PHY.
- The Microsoft\* Windows\* XP Embedded software package has been updated to include support for the Broadcom\* BCM5481 PHY.

Please refer to the Getting Started Guide for your operating system for additional information.

## 1.2 Supported Operating Systems

This software release has been validated with the following operating systems:

- Red Hat Enterprise Linux\* 5.0 (RHEL 5.0), Kernel 2.6.18
- Microsoft\* Windows\* XP Embedded Service Pack 2
- FreeBSD\* 6.2

## 1.3 Supported Component Versions

### 1.3.1 Version Numbering Scheme

The version numbering scheme used in this software release uses this naming convention: package.os.major.minor.maintenance

where:

- package can be one of the following:
  - Embedded
  - Security
  - Telephony
- os can be one of the following:
  - X = Windows XP Embedded\*
  - L = Linux\*
  - B = FreeBSD\*



### 1.3.2 Package Versions

Table 1. Package Versions

Operating System	Package Version
Microsoft* Windows* XP Embedded Package	Embedded.X.1.0.70
Linux* Package	Embedded.L.1.0.75
FreeBSD* Package	Embedded.B.1.0.35

### 1.3.3 BIOS/Firmware Version

The term BIOS is used to refer to pre-boot firmware which could include legacy BIOS or Extensible Firmware Interface (EFI) compliant firmware.

BIOS Version: TRXTG060.ROM

## 2 Known Issues - Embedded

For supplementary information relating to the Known Issues, please refer to the following documents:

- Intel® EP80579 Software Drivers for Embedded Applications Programmer’s Guide and API Reference Manual, Number: 320154
- Section 3, “Related Documentation” on page 13 lists other relevant documents

Table 2. Summary of Embedded Software Open Issues

IXA00058114 - Embedded Gigabit Ethernet driver Load/Unload memory leak on Red Hat Enterprise Linux v5.0.....	7
IXA00058233 - Intel® EP80579 Integrated Processor with Intel® QuickAssist Technology Development Board will hang on reset command in FreeBSD .....	7
IXA00058236 - Gigabit Ethernet devices do not appear after reboot on FreeBSD .....	7
IXA00058242 - Disabling/Enabling output pin causes board reset when using the Microsoft Windows XP Embedded Watchdog Timer driver.....	8
IXA00058263 - SATA port 1 not showing populated when CD/DVD ROM attached .....	8
IXA00058281 - SMBus Driver cannot be enabled/utilized on Microsoft Windows XP Embedded .....	9
IXA00160881 - Using the smbmsg utility to probe the SMBus may hang the Intel® EP80579 Development Board on FreeBSD .....	9
IXA00160925 - Manual setting of duplex mode of Embedded Gigabit Ethernet driver fails on Microsoft Windows XP Embedded & Red Hat Enterprise Linux 5.0.....	10
IXA00160932 - Watchdog Timer driver counters are reset after a Power Management S3 Suspend action on Microsoft Windows XP Embedded .....	10
IXA00160970 - Make install targets do not work when executed within component directory on FreeBSD ..	10
IXA00178488 - No option is available to enable VLAN in Microsoft Windows XP Embedded .....	11
IXA00179772 - IDE mode within the BIOS setup menu should be set to "AHCI" for optimal performance on Red Hat Enterprise Linux 5.0.....	11
IXA00206755 - Driver displays install warnings with Red Hat Enterprise Linux 5.0 distribution - 2.6.18 kernel .....	12
IXA00216017 - CompactFlash cards are not supported with embedded software drivers.....	12
IXA00234579 - The iegbe.inf file references non-POR operating system and claims support of Intel PRO/1000 adapters.....	12
IXA00241849 - Installation issues observed on Red Hat Enterprise Linux 5 using DVD SATA drives with IDE mode set to AHCI .....	13
IXA00309267 - UART port may not come out of S3 hibernation.....	13



### 2.1 IXA00058114 - Embedded Gigabit Ethernet driver Load/Unload memory leak on Red Hat Enterprise Linux v5.0

Title	Embedded Gigabit Ethernet driver Load/Unload memory leak on Red Hat Enterprise Linux v5.0
Reference #	IXA00058114
Description	A memory leak has been found while loading/unloading the Gigabit Ethernet driver over 15000 times in a 20 hour period without a reboot of the development board.
Implication	Although any memory leak is a concern, this is an extreme situation that should not impact any known usage model with the embedded software Linux release.
Resolution	Limit the number of times the driver is loaded or reboot the system periodically.
Affected OS	Red Hat Enterprise Linux 5.0
Driver/Module	Gigabit Ethernet Controller Driver

### 2.2 IXA00058233 - Intel® EP80579 Integrated Processor with Intel® QuickAssist Technology Development Board will hang on reset command in FreeBSD

Title	Intel® EP80579 Integrated Processor with Intel® QuickAssist Technology Development Board will hang on reset command in FreeBSD
Reference #	IXA00058233
Description	Commands to reboot the system under FreeBSD result in a system hang on the Development Board. This has been observed with 'reboot' and 'shutdown -r now' commands. The operating system completes the shutdown process, but hangs in the reset mechanism. There have been several reports of this in the public forums and is apparently caused by a defect in the operating system.
Implication	The board must be manually reset.
Resolution	No work around available.
Affected OS	FreeBSD 6.2
Driver/Module	Not Applicable

### 2.3 IXA00058236 - Gigabit Ethernet devices do not appear after reboot on FreeBSD

Title	Gigabit Ethernet devices do not appear after reboot on FreeBSD
Reference #	IXA00058236
Description	When there is a dependency between drivers, FreeBSD detects the dependency when loading the drivers manually using kldload command and loads the drivers accordingly. However, when the task is automated to load dependent drivers after each boot, the OS seems to load the drivers in ascending order of PCI bus:device:function:number, as it enumerates devices. The GbE adapters and GCU are on the same PCI bus, but GCU has a function numerically larger than the adapters, hence its driver gets loaded only after the GbE driver loads (which fails to initialize the hardware because it is dependent on GCU).
Implication	After rebooting FreeBSD, Gigabit Ethernet devices do not appear.



<b>Title</b>	<b>Gigabit Ethernet devices do not appear after reboot on FreeBSD (Continued)</b>
Resolution	A workaround for this problem is documented in the FreeBSD Getting Started Guide. It requires "make install" to be executed. This ensures the GCU driver is loaded on every boot. In addition, you need to add the following line to your login script (e.g., .cshrc, .bashrc) kldload /boot/kernel/iegbe.ko >& /dev/null This ensures that the Embedded Gigabit Ethernet device driver gets loaded after each logon.
Affected OS	FreeBSD 6.2
Driver/Module	Gigabit Ethernet Controller Driver

## 2.4 IXA00058242 - Disabling/Enabling output pin causes board reset when using the Microsoft Windows XP Embedded Watchdog Timer driver

<b>Title</b>	<b>Disabling/Enabling output pin causes board reset when using the Microsoft Windows XP Embedded Watchdog Timer driver</b>
Reference #	IXA00058242
Description	If the Watchdog Timer enable pin is set to enable while the Watchdog Timer is actively counting down in watchdog mode during the first stage, the system will reset.
Implication	Unreliable results will occur when changing board setting while the Watchdog Timer driver has been engaged in a countdown cycle.
Resolution	Do not enable or disable the Watchdog Timer enable pin while the Watchdog Timer is actively in a countdown cycle.
Affected OS	Windows XP Embedded
Driver/Module	Watchdog Timer Driver

## 2.5 IXA00058263 - SATA port 1 not showing populated when CD/DVD ROM attached

<b>Title</b>	<b>SATA port 1 not showing populated when CD/DVD ROM attached</b>
Reference #	IXA00058263
Description	In the BIOS Setup Menu under the IDE selection screen the 2nd SATA port (SATA 1) shows "Not Present" when a CD/DVD ROM is plugged into SATA port 1 and the IDE mode is AHCI. Hard Drives will appear correctly. However, the CD/DVD ROM appears to be fully functional and can be selected in the boot order.
Implication	In the AHCI mode for IDE, CD/DVD ROMs may not show up when plugged into the SATA ports. This is viewed in the Advanced->IDE Configuration Screen in the BIOS setup menu. Functionality of the device is not impacted and will still be selectable in the boot order. The CD/DVD ROM devices tested were Plextor PX-72Sa and LG GSA-H62L.
Resolution	No work around available.
Affected OS	FreeBSD 6.2 Red Hat Enterprise Linux 5.0 Windows XP Embedded
Driver/Module	Driver-General





## 2.6 IXA00058281 - SMBus Driver cannot be enabled/utilized on Microsoft Windows XP Embedded

Title	SMBus Driver cannot be enabled/utilized on Microsoft Windows XP Embedded
Reference #	IXA00058281
Description	It is not possible to enable or use the SMBus driver on Microsoft Windows XP Embedded unless specific components are included in the target image creation process. 'PCI Standard ISA bridge' and 'PCI Standard Host CPU bridge' components need to be included when creating target Microsoft Windows XP Embedded image in order to use the SMBus driver.
Implication	It is not possible to enable or use the SMBus driver on Microsoft Windows XP Embedded unless specific components are included in the target image creation process.
Resolution	Include 'PCI Standard ISA bridge' and 'PCI Standard Host CPU bridge' components when creating target Windows XP Embedded image. This will allow SMBus to be enabled and utilized under Microsoft Windows XP Embedded. Refer to Intel® EP80579 Software Drivers for Embedded Applications on Microsoft Windows* XP Embedded Getting Started Guide for additional information on target image creation.
Affected OS	Windows XP Embedded
Driver/Module	SMBus Controller Driver

## 2.7 IXA00160881 - Using the smbmsg utility to probe the SMBus may hang the Intel® EP80579 Development Board on FreeBSD

Title	Using the smbmsg utility to probe the SMBus may hang the Intel® EP80579 Development Board on FreeBSD
Reference #	IXA00160881
Description	If the FreeBSD smbmsg utility is used to probe the SMBus, the system may hang. Note that probing the SMBus is risky. Individual devices can perform unwanted actions upon receiving the probe request message. For example, if a particular SMBus device considers any write operation issued to it as a request to power off the system, the probing would trigger this action. For additional information please refer to the smbmsg man page ( <a href="http://www.ipnom.com/FreeBSD-Man-Pages/smbmsg.8.html">http://www.ipnom.com/FreeBSD-Man-Pages/smbmsg.8.html</a> )
Implication	Using the smbmsg utility to probe the SMBus may hang the development board on FreeBSD.
Resolution	It is not advisable to use the smbmsg utility to probe SMBus.
Affected OS	FreeBSD 6.2
Driver/Module	SMBus Controller Driver



## 2.8 IXA00160925 - Manual setting of duplex mode of Embedded Gigabit Ethernet driver fails on Microsoft Windows XP Embedded & Red Hat Enterprise Linux 5.0

Title	Manual setting of duplex mode of Embedded Gigabit Ethernet driver fails on Microsoft Windows XP Embedded & Red Hat Enterprise Linux 5.0
Reference #	IXA00160925
Description	When Embedded Gigabit Ethernet driver is manually configured to run at 10Mbps or 100Mbps full duplex, the operation mode is set to half-duplex. This behavior has been observed under Microsoft Windows XP Embedded and Red Hat Enterprise Linux 5.0. Autonegotiation allows driver to run at 10Mbps and 100Mbps full duplex.
Implication	It is not possible to manually set the duplex mode to full duplex with the Embedded Gigabit Ethernet driver. Attempts to do this will result in duplex mode being set to half duplex. The system will still function, but will do so in half duplex mode.
Resolution	Use autonegotiation instead of manual configuration if full duplex is desired.
Affected OS	Red Hat Enterprise Linux 5.0 Windows XP Embedded
Driver/Module	Gigabit Ethernet Controller Driver

## 2.9 IXA00160932 - Watchdog Timer driver counters are reset after a Power Management S3 Suspend action on Microsoft Windows XP Embedded

Title	Watchdog Timer driver counters are reset after a Power Management S3 Suspend action on Microsoft Windows XP Embedded
Reference #	IXA00160932
Description	Timer driver counters are reset after a Power Management S3 Suspend action. This issue is present on Microsoft Windows XP Embedded.
Implication	Watchdog Timer is typically used for critical functionality that will not allow for systems to go into S3. In addition, the Watchdog Timer driver will be functional as designed when the system is fully on. The only item of potential concern is that the Watchdog Timer driver counters will be reset when a system goes from S3 to on. At that time Watchdog Timer driver will work as designed.
Resolution	If Watchdog Timer is critical to your system, do not allow the system to enter into S3.
Affected OS	Windows XP Embedded
Driver/Module	Watchdog Timer Driver

## 2.10 IXA00160970 - Make install targets do not work when executed within component directory on FreeBSD

Title	Make install targets do not work when executed within component directory on FreeBSD
Reference #	IXA00160970
Description	The Makefiles for 1588, CAN, EDMA, GCU, GPIO, and WDT each contain a "install" target. There is an issue with the "kldload \$(KMOD).ko" line. Executing "make install" when in component directory (such as 1588) the command fails with an error message similar to following: "can't load timesync.ko: No such file or directory" This error message is returned, because in FreeBSD the current directory is not part of the path for security reasons, so the kldload command does not know where the .ko image comes from.
Implication	Individual embedded drivers will not be installed.



<b>Title</b>	<b>Make install targets do not work when executed within component directory on FreeBSD (Continued)</b>
Resolution	After compiling the individual embedded driver ("make"), then execute the kldload command making sure to include the path to the .ko file. For example, kldload ./can.ko
Affected OS	FreeBSD 6.2
Driver/Module	All

**2.11 IXA00178488 - No option is available to enable VLAN in Microsoft Windows XP Embedded**

<b>Title</b>	<b>No option is available to enable VLAN in Microsoft Windows XP Embedded</b>
Reference #	IXA00178488
Description	It is not currently possible to enable VLAN capability in Microsoft Windows XP Embedded.
Implication	No VLAN capability currently exists with EP80579 embedded software release for Microsoft Windows XP Embedded.
Resolution	No work around available.
Affected OS	Windows XP Embedded
Driver/Module	Gigabit Ethernet Controller Driver

**2.12 IXA00179772 - IDE mode within the BIOS setup menu should be set to "AHCI" for optimal performance on Red Hat Enterprise Linux 5.0**

<b>Title</b>	<b>IDE mode within the BIOS setup menu should be set to "AHCI" for optimal performance on Red Hat Enterprise Linux 5.0</b>
Reference #	IXA00179772
Description	The performance of the Embedded Gigabit driver is significantly lower when the IDE mode is set to "Legacy". AHCI inherently provides higher performance and setting the system to AHCI mode will result in superior performance results, provided the hard drive used in the system supports AHCI.
Implication	System performance is significantly lower when IDE mode is set to "Legacy" mode.
Resolution	AHCI inherently provides higher performance. Setting the system IDE mode to "AHCI" will result in superior performance results. Refer to the chapter titled Pre-boot (BIOS) Firmware within the Getting Started Guide for instructions to toggle the IDE mode to "AHCI" in the BIOS setup menu.
Affected OS	Red Hat Enterprise Linux 5.0
Driver/Module	Gigabit Ethernet Controller Driver



### 2.13 IXA00206755 - Driver displays install warnings with Red Hat Enterprise Linux 5.0 distribution - 2.6.18 kernel

Title	Driver displays install warnings with Red Hat Enterprise Linux 5.0 distribution - 2.6.18 kernel
Reference #	IXA00206755
Description	When building the Intel® EP80579 Software Drivers for Embedded Applications using Red Hat Enterprise Linux 5.0, warnings are displayed as follows: Warning: vmlinux - Section mismatch: reference to .exit.text: from .smp_alternatives between '__smp_alt_begin' (at offset...) and '__smp_locks_end'
Implication	These warning messages are from the Red Hat Enterprise Linux 5.0 distribution. They are not from the embedded software drivers. These warnings will not interfere with the building and function of the embedded software drivers.
Resolution	No work around is available. The building and function of the embedded software drivers are not impacted.
Affected OS	Red Hat Enterprise Linux 5.0
Driver/Module	All

### 2.14 IXA00216017 - CompactFlash cards are not supported with embedded software drivers

Title	CompactFlash cards are not supported with embedded software drivers
Reference #	IXA00216017
Description	Currently CompactFlash on the Lower Expansion Bus of the Intel EP80579 Development Board are not supported with drivers in any of the embedded software releases.
Implication	No CompactFlash driver support is available for use of the CompactFlash.
Resolution	No work around available.
Affected OS	FreeBSD 6.2 Red Hat Enterprise Linux 5.0 Windows XP Embedded
Driver/Module	Not Applicable

### 2.15 IXA00234579 - The iegbe.inf file references non-POR operating system and claims support of Intel PRO/1000 adapters

Title	The iegbe.inf file references non-POR operating system and claims support of Intel PRO/1000 adapters
Reference #	IXA00234579
Description	The iegbe.inf file indicates support for operating systems other than Microsoft Windows XP Embedded. It also indicates support for many of the Intel(R) PRO/1000 Adapters. In fact, this .inf file only supports the Intel® EP80579 Gigabit Ethernet Controllers. The only operating system that the iegbe.inf and Intel® EP80579 Gigabit Ethernet Controller Driver support is Microsoft Windows XP Embedded. The driver is not interchangeable with any Intel LAN Access Division, Intel(R) PRO/1000 Gigabit Adapters. Intel LAN Access Division developed software was utilized to develop a gigabit adapter driver to function with the Intel® EP80579 Gigabit Ethernet Controllers only.
Implication	The customer may be misled into believing that the Intel® EP80579 Gigabit Ethernet Controller Driver supports multiple operating systems and a host of other Intel(R) PRO/1000 Adapters. This driver only supports Microsoft Windows XP Embedded and the Intel® EP80579 Gigabit Ethernet Controllers.



<b>Title</b>	<b>The iegbe.inf file references non-POR operating system and claims support of Intel PRO/1000 adapters (Continued)</b>
Resolution	No work around available.
Affected OS	Windows XP Embedded
Driver/Module	Gigabit Ethernet Controller Driver

## 2.16 IXA00241849 - Installation issues observed on Red Hat Enterprise Linux 5 using DVD SATA drives with IDE mode set to AHCI

<b>Title</b>	<b>Installation issues observed on Red Hat Enterprise Linux 5 using DVD SATA drives with IDE mode set to AHCI</b>
Reference #	IXA00241849
Description	When IDE mode is set to AHCI, installation of Red Hat Enterprise Linux using some DVD SATA drives will fail. During the installation process the message "Loading AHCI driver" is displayed, and the installation hangs. This has been observed on some DVD SATA drives.
Implication	When IDE mode is set to AHCI, installation of Red Hat Enterprise Linux using some DVD SATA drives will fail.
Resolution	If DVD SATA drives exhibit this behavior, perform installation with IDE mode set to Legacy. If AHCI is desired, perform installation using USB DVD, USB CD drive, or other DVD SATA drive.
Affected OS	Red Hat Enterprise Linux 5.0
Driver/Module	SATA

## 2.17 IXA00309267 - UART port may not come out of S3 hibernation

<b>Title</b>	<b>UART port may not come out of S3 hibernation</b>
Reference #	IXA00309267
Description	When the development board is suspended via the command 'echo -n mem > /sys/power/state' and brought back into service via pressing the power button, the UART may not come back into service. Crash trace is reported in /var/log/messages relating to IRQ 9 which is associated with ACPI as reported /proc/interrupts
Implication	Affects Embedded release packages only because power management feature is not available on accelerated software.
Resolution	To recover, reboot the system.
Affected OS	Red Hat Enterprise Linux 5.0
Driver/Module	Intel® EP80579 Development Board BIOS

# 3 Related Documentation

## 3.1 Where to Find Current Software and Documentation

The software release and associated collateral can be found on the Hardware Design resource center.

1. In a web browser, go to <http://www.intel.com/go/soc>
2. For Software and pre-boot firmware: Click on "Tools & Software" tab.
3. For Documentation: Click on "Technical Documents" tab.



## 3.2 Embedded Documents

The following documents provide more information about the software provided in this release:

Document Name	Number
Intel® EP80579 Software Drivers for Embedded Applications Programmer's Guide and API Reference Manual	320154
Intel® EP80579 Software Drivers for Embedded Applications on Linux* Getting Started Guide	320151
Intel® EP80579 Software Drivers for Embedded Applications on FreeBSD* Getting Started Guide	320152
Intel® EP80579 Software Drivers for Embedded Applications on Microsoft* Windows* XP Embedded Getting Started Guide	320153
Software for Intel® EP80579 Integrated Processor Product Line PHY Porting Guide	320203
Ethernet PHY Selection Criteria for the Intel® EP80579 Integrated Processor Product Line Application Note	320254
Intel® EP80579 Integrated Processor Product Line Datasheet	320066
Intel® EP80579 Integrated Processor Product Line Specification Update	320176

