



# **Intel® Blade Server Ethernet Switch Module IXM5414E**

## ***Specification Update***

*Intel Order Number C85293-003*

**August, 2006**

**Enterprise Platforms and Services Marketing**

---

## *Revision History*

Date	Modifications
08/10/04	Initial release.
03/10/05	Updated content for IXM5414E with Hardware Part Number – C56082-010 and Firmware 1.0.0.28 Updated errata #s 1 – 10 and doc errata # 1 Added errata #s 11,12,13 ,14,15 & 16 and Doc errata # 2
08/04/06	Updated content for IXM5414E with Hardware Part Number – C56082-011 and Firmware 1.0.0.31 Updated errata #s 4,11 – 13, 15, and doc errata #2

## *Disclaimers*

The Intel® Blade Server Ethernet Switch Module IXE5414E may contain design defects or errors known as errata that may cause the product to deviate from the published specifications. Current characterized errata are documented in this Specification Update.

Information in this document is provided in connection with Intel products. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Intel's Terms and Conditions of Sale for such products, Intel assumes no liability whatsoever, and Intel disclaims any express or implied warranty, relating to sale and/or use of Intel products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright or other intellectual property right. Intel products are not intended for use in medical, life saving, or life sustaining applications. Intel may make changes to specifications and product descriptions at any time, without notice.

Contact your local Intel sales office or your distributor to obtain the latest specifications and before placing your product order.

Intel, Itanium, Pentium, and Xeon are trademarks or registered trademarks of Intel Corporation.

\*Other brands and names may be claimed as the property of others.

Copyright © Intel Corporation 2004-2006.

# Contents

<b>Preface</b> .....	<b>1</b>
<b>Product Scope</b> .....	<b>2</b>
Intel® Blade Server Ethernet Switch Module IXM5414E Firmware.....	2
Intel® Blade Server Ethernet Switch Module IXM5414E Hardware .....	2
<b>Summary Tables of Change</b> .....	<b>3</b>
<b>Errata</b> .....	<b>5</b>
1.    MCU code is not field upgradeable.....	5
2.    4x configuration does not pass with required EMC margin .....	5
3.    IXM5414E accepts firmware of its Telco counterpart switch .....	6
4.    Packet drops are observed in congestion scenario .....	6
5.    Wake on LAN (WoL) does not work on the Intel® Blade Server SBX44 .....	6
6. <i>clear config</i> CLI command does not prompt user .....	7
7.    Saving the existing static IP address to the switch module disables the MM-switch IP interface .....	7
8.    Automated power cycling test failures .....	8
9.    Protocol-based VLAN is not supported.....	8
10.   SNMP Agent returns incorrect error status for wrongLength error condition.....	8
11.   Event log faults observed during power cycling tests .....	9
12.   Switch becomes unreachable when admin-mode is disabled for “ALL” ports .....	9
13.   Spurious pop-up error message observed when “ALL” ports are selected on the port configuration screen .....	9
14.   Wrong CLI help option displayed for SSL configuration .....	10
15.   With flow control enabled, two directly connected IXM5414Es may experience lock-up .....	10
16.   Incorrect prompt displayed during upload of a config file .....	10
<b>Documentation Changes</b> .....	<b>11</b>

<This page intentionally left blank.>

## Preface

---

This document is an update to the specifications contained in the *Intel® Blade Server Ethernet Switch Module IXM5414E: Installation and User's Guide*. It is intended for hardware system manufacturers and software developers of applications, operating systems, or tools. It will contain specification changes, specification clarifications, errata, and document changes.

### Nomenclature

**Specification Changes** are modifications to the current published specifications for Intel® server boards. These changes will be incorporated in the next release of the specifications.

**Specification Clarifications** describe a specification in greater detail or further highlight a specification's impact to a complex design situation. These clarifications will be incorporated in the next release of the specifications.

**Documentation Changes** include typos, errors, or omissions from the current published specifications. These changes will be incorporated in the next release of the specifications.

**Errata** are design defects or errors. Errata may cause the product behavior to deviate from published specifications.

## Product Scope

---

This document is specific to the Intel® Blade Server Ethernet Switch Module IXM5414E with the following info:

### Intel® Blade Server Ethernet Switch Module IXM5414E Firmware

Firmware Type	Build ID	Released	Revision
Boot ROM	BRISM02	07/02/2004	3.05
Main Application 1	BRISM31	10/07/2005	1.00
Main Application 2	IXM54_MCU	10/05/2004	1.96

**Note:** The above information is available via the Firmware VPD link using the Management Module Web-based GUI.

### Intel® Blade Server Ethernet Switch Module IXM5414E Hardware

- Part Number – C56082-011
- Part Number – C56082-010
- Part Number – C56082-003

**Note:** The above information is available via the Hardware VPD link using the Management Module Web-based GUI.

## Summary Tables of Change

---

The following tables indicate the errata and the document changes that apply to the Intel® Blade Server Ethernet Switch Module IXM5414E. Intel intends to fix some of the errata in a future stepping of components, and to account for the other outstanding issues through documentation or specification changes as noted. The tables use the following notations:

**Doc:** Intel intends to update the appropriate documentation in a future revision.

**Fix:** Intel intends to fix this erratum in a future release of the component.

**Fixed:** This erratum has been previously fixed.

**No Fix:** There are no plans to fix this erratum.

**Shaded:** This erratum is either new or has been modified from the previous specification update.

**Table 1. Errata Summary**

No.	Plans	Description of Errata
1.	Fixed	MCU code is not field upgradeable.
2.	Fixed	4x configuration does not pass with required EMC margin
3.	Fixed	IXM5414E accepts firmware of its Telco counterpart switch
4.	No Fix	Packet drops are observed in congestion scenario
5.	Fixed	Wake on LAN does not work on Intel® Blade Server SBX44
6.	Fixed	<i>clear config</i> CLI command does not prompt user
7.	Fixed	Saving the existing IP address to the switch module disables the MM-switch IP interface
8.	Fixed	Automated power cycling test failures
9.	Fixed	Protocol-based VLAN feature is not supported
10.	Fixed	SNMP Agent returns incorrect error status for <i>wrongLength</i> error condition
11.	No Fix	Event log faults observed during power cycling tests
12.	Fixed	Switch becomes unreachable when admin-mode is disabled for "ALL" ports
13.	Fixed	Spurious pop-up error message observed when "ALL" ports are selected on the port configuration screen
14.	Fix	Wrong CLI help option displayed for SSL configuration
15.	No Fix	With flow control enabled, two directly connected IXM5414Es may experience lock-up
16.	Fix	Incorrect prompt displayed during upload of a config file

**Table 2. Documentation Changes**

<b>No.</b>	<b>Plans</b>	<b>Description of Documentation Change</b>
1.	Fixed	Static and dynamic IP acquisition UI/CLI-commands are not present in the Installation and User's Guide
2.	No Fix	Screen captures display "Protocol-based VLAN" as an option in the left menu

Following are in-depth descriptions of each erratum / documentation change indicated in the previous tables. The errata and documentation change numbers correspond to the numbers in the tables.



# Errata

---

## 1. MCU code is not field upgradeable

Problem	The MCU firmware within the switch module is not field upgradeable. Any changes to the MCU code can only be done in the factory.
Implication	Any bug fixes to the MCU code can only be accomplished by a MCU code change at the factory. The MCU code implements MM and switch I2C interaction.
Workaround	None.
Status	Fixed. IXM5414E with hardware P/N of C56082-010 with the 1.0.0.28 and above level of firmware allows MCU code to be updated in the field. IXM5414E with hardware P/N of C56082-003 with firmware level of either 1.0.0.22 or 1.0.0.28 does not allow field upgradability of the MCU Code.

## 2. 4x configuration does not pass with required EMC margin

Problem	EMC testing had lower than required margins for four switch configurations. At this point, only two switch configurations are supported. Two switch configurations require dongles for all external ports to ensure the configuration meets EMC requirements.
Implication	Four switch modules can not be used in the same chassis.
Workaround	None. Use switch module in slot 1 and 2 with the dongles supplied with the switch.
Status	Fixed. IXM5414E with hardware P/N of C56082-010 and C56082-011 allow use of up to four switch modules in the same chassis. To ensure product regulation compliance for radiated emissions, the system must only be used with a minimum of four ferrite cores clamped around each of the external cables connected to the IXM5414E as close to the switch module as possible. When using IXM5414E with hardware P/N of C56082-003, only two switch modules (with dongles) are supported in the chassis.

### 3. IXM5414E accepts firmware of its Telco counterpart switch

Problem	The switch module does not check validity of new firmware prior to a flash update. If incorrect firmware is flashed into the switch, the switch becomes inoperable.
Implication	If incorrect firmware is flashed onto the switch, the switch will need to be returned to the factory for restoration.
Workaround	None
Status	Fixed. Firmware version 1.0.0.28 implements a signature check which allows only the right firmware to be flashed on to the switch.

### 4. Packet drops are observed in congestion scenario

Problem	When flow control is disabled on bay ports, sending wire speed traffic from multiple ports to the same port could result in packet drops
Implication	TCP applications will experience packet drops and experience reduced network throughput.
Workaround	Enable flow control on bay and external ports to reduce packet drops.
Status	No Fix. An IXE5416 ASIC limitation disallows any useful software based fix. This is applicable for IXM5414E hardware.

### 5. Wake on LAN (WoL) does not work on the Intel® Blade Server SBX44

Problem	WoL does not work on the Intel® Blade Server SBX44
Implication	The Intel® Blade Server SBX44 can not be powered up using a WoL packet.
Workaround	Power up the Intel® Blade Server SBX44 through MM/IDM prior to attempting WoL via IXM5414E. Subsequently, the switch module will be able to switch WoL packets to the Intel® Blade Server SBX44.
Status	Fixed. Firmware version 1.0.0.28 enables IXM5414E to pass WOL packets to the Intel® Blade Server SBX44.

## 6. *clear config* CLI command does not prompt user

Problem	The CLI command <i>clear config</i> clears all configuration to factory defaults and triggers a switch reboot without prompting the user to confirm the action.
Implication	None
Workaround	None.
Status	Fixed. Firmware version 1.0.0.28 prompts user for confirmation when the <i>clear config</i> command is used.

## 7. Saving the existing static IP address to the switch module disables the MM-switch IP interface

Problem	Resaving an existing IP address to the switch from the MM interface places the IP interface in the disabled state. This has no impact when the switch is powered up.
Implication	If the MM-switch interface is in the disabled state, the internal management path to the switch via the MM is broken. The switch will have to be managed through an external port while the MM-switch IP interface is in the disabled state. Note that the switch external ports shall be enabled and management over external ports shall also be enabled from MM interface (IO module Tasks -> Management -> Bay <slot #> -> Advanced Management screen) in order to manage the switch through its external ports. Initiate browser or telnet sessions directly to the switch IP address for managing the switch through its external ports.
Workaround	Do not assign the same static IP address to the switch from MM interface (IO module tasks -> Management -> Bay <Slot #> -> New static IP configuraiton). If the MM-switch IP interface is in the disabled state, assign a different static IP address to the switch, perform save, change the IP address to the desired value and then perform save again to place the IP interface in enabled state.
Status	Fixed. Firmware 1.0.0.28 permits re-saving the same IP address through the CMM GUI without disabling the IP state.

## 8. Automated power cycling test failures

Problem	The following errors have been observed during automated power cycling: a) Bay ports may report link as down. b) MM may report IO module fault in the MM event log. c) MM may report current fault in the MM event log.
Implication	Network connectivity to the server is lost when Bay ports report the link as down. No functional impact has been observed for both (b) and (c).
Workaround	When Bay ports report the link as down, either Disable and Enable, or repair the NIC of the server blade to bring up the link status.
Status	Fixed. Use of firmware 1.0.0.28 solves problems (a) and (c). For problem (b), please see the errata # 11.

## 9. Protocol-based VLAN is not supported

Problem	Protocol-based VLAN is not supported.
Implication	Do not use the Protocol-based VLAN feature. Use Port-based VLAN if this meets the need.
Workaround	None.
Status	Fixed. Firmware 1.0.0.28 has no CLI or GUI options for the Protocol-based VLAN configurations.

## 10. SNMP Agent returns incorrect error status for wrongLength error condition

Problem	SNMPv2c: Agent returns incorrect error status: commitFailed instead of wrongLength.
Implication	The SNMP manager may display an incorrect error message due to wrong error code presented by the SNMPv2c agent in the switch module.
Workaround	None.
Status	Fixed. This issue is fixed in firmware version 1.0.0.28.

## 11. Event log faults observed during power cycling tests

Problem	During automated power cycling tests, the CMM/CMM2 event log reports “I/O module fault” occasionally. This issue affects the Intel® Blade Server Chassis SBCE configured with both CMM and CMM2 management modules
Implication	No functional impact has been observed.
Workaround	This is a recoverable error, and there is no functional impact to the switch module
Status	No Fix. There is no functional impact to the switch module for this issue.

## 12. Switch becomes unreachable when admin-mode is disabled for “ALL” ports

Problem	When the admin-mode is disabled for all ports using the web-based GUI by selecting “ALL” ports as an option from the drop-down menu, the switch becomes unresponsive for management purposes.
Implication	The switch cannot be pinged or managed using the web-based GUI or the CLI via telnet until it is reset from the management module web-based GUI.
Workaround	When the admin-mode needs to be disabled for “ALL” ports, the web-based GUI should not be used. Instead, use the CLI command “ <i>config port adminmode all disable</i> ”.
Status	Fixed. This issue is fixed in firmware version 1.0.0.31.

## 13. Spurious pop-up error message observed when “ALL” ports are selected on the port configuration screen

Problem	When the “ALL” ports option is selected from the drop-down box while using the web-based GUI configuration for port configurations, a pop-up error message is occasionally observed stating “ <i>Error: Failed to Set Admin Mode</i> ”.
Implication	There is no functional impact of this error message except when “admin-mode” is set as disabled (see errata # 12). All ports are configured as per the selected option.
Workaround	Do not use the Web-based GUI for configuring port parameters. Instead, use the CLI via a telnet session.
Status	Fixed. This issue is fixed in firmware version 1.0.0.31.

## 14. Wrong CLI help option displayed for SSL configuration

Problem	The CLI help message shows “ <i>datatype sslpem-strong</i> ” as an option for the datatype selection when using secure download. The correct option is “ <i>datatype sslpem-dhstrong</i> ”.
Implication	There is no functional impact observed.
Workaround	The CLI reference card shows the correct option. The user may refer to this document for selecting the right option.
Status	Fix. A software fix is under investigation.

## 15. With flow control enabled, two directly connected IXM5414Es may experience lock-up

Problem	When flow control is enabled on the external ports of two IXM5414E switch modules directly connected to each other and under heavy network traffic, the two IXM5414Es may experience a possible “hang”. The switch modules stop switching traffic and do not respond to either ping, telnet or web requests. An IXM5414E connected to any other switch, which does not use the IXE5416 ASIC, will not experience any lock-up when flow control settings are enabled.
Implication	No switching or forwarding happens when IXM5414Es experience this problem.
Workaround	There is no currently known workaround for this condition. The switch modules need to undergo power reset - either manually or through the management web-GUI to recover from the “hang” condition.
Status	No Fix. An IXE5416 ASIC limitation disallows any useful software-based fix. This is applicable for all IXM5414E hardware versions.

## 16. Incorrect prompt displayed during upload of a config file

Problem	When the user tries to upload a config file to the IXM5414E switch module using the web-based GUI, an incorrect user-prompt appears. The prompt displays the message “ <i>download MCU code to switch?</i> ” even though the config file upload is not related to the MCU code upgrade.
Implication	There is no functional impact observed. The config file upload completes successfully even though the prompt message is misleading.
Workaround	None.
Status	Fix. A software fix is under investigation.

## Documentation Changes

---

### 1. **Static and dynamic IP acquisition UI/CLI-commands not documented in the *Installation and User's Guide***

Problem: Static and dynamic IP acquisition menu items are not documented in the *Installation and User's Guide*.

Affected Docs: *Intel® Blade Server Ethernet Switch Module IXM5414E: Installation and User's Guide, C66107-002*

Status Fixed in *Intel® Blade Server Ethernet Switch Module IXM5414E: Installation and User's Guide, C66107-004*.

### 2. **Screen captures display "Protocol-based VLAN" as an option in the left menu**

Problem: The web-based configuration chapter of the *Installation and User's Guide* has screen captures that depict protocol-based VLAN as an option in the left panel of the GUI. The screen captures could be misleading since the IXM5414E does not support Protocol-based VLAN features.

Affected Docs: *Intel® Blade Server Ethernet Switch Module IXM5414E: Installation and User's Guide, C66107-004*

Status No Fix