



Intel® Blade Server Ethernet Switch Module IXM5414E

Specification Update

Order Number C85293-002

April 2005

Notice: The Intel® Blade Server Ethernet Switch Module IXM5414E may contain design defects or errors known as errata that may cause the product to deviate from published specifications. Current characterized errata are documented in this specification update.



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Revision History

Date	Order No.	Description
April 2005	C85293.002	<ul style="list-style-type: none">• Updated content for IXM5414E with Hardware Part Number - C56082-010 and Firmware 1.0.0.28)• Updated the status of the following errata #s 1 to 10• Updated the status of documentation change # 1• Added the following errata: #s 11 to 16• Added the documentation change # 2
August 2004	C85293.001	<ul style="list-style-type: none">• Initial release.

Preface

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 document.

This document is an update to the specifications contained in the Affected Documents/Related Documents table shown below. 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.

Information types defined in Nomenclature are consolidated into the specification update and are no longer published in other documents.

This document may also contain information that was not previously published.

Affected Documents/Related Documents

<i>Intel® Blade Server Ethernet Switch Module IXM5414E: Installation and User's Guide</i>

Nomenclature

Errata are design defects or errors. These may cause the product's behavior to deviate from published specifications. Hardware and software designed to be used with any given release must assume that all errata documented for that stepping are present on all devices.

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

Documentation Changes include typos, errors, or omissions from the current published specifications. These will be incorporated in any new release of the specification.

Product Scope and Usage

This document is specific to Intel® Blade Server Ethernet Switch Module IXM5414E with the following hardware and firmware configurations:

IXM5414E Firmware

Table 2. IXM5414E Firmware Version 1.0.0.28

Firmware Type	Build ID	Released	Revision
Boot ROM	BRISM02	07/02/2004	3.05
Main Application 1	BRISM28	02/15/2005	1.00
Main Application 2	IXM54_MCU	10/05/2004	1.96

Table 3. IXM5414E Firmware Version 1.0.0.22

Firmware Type	Build ID	Released	Revision
Boot ROM	BRISM02	07/02/2004	3.03
Main Application 1	BRISM22	07/03/2005	1.00
Main Application 2	IXM54_MCU	07/02/2004	1.88

IXM5414E Hardware

- Part Number - C56082-010
- Part Number - C56082-003

Additional Usage Information

1. IXM5414E with hardware part number of C56082-010 ships with the BRISM28 and IXM54_MCU version 1.96 installed.
2. End users with IXM5414E switch module with hardware p/n of C56082-003 and firmware level of BRISM22 can now upgrade the firmware of their switch module to the latest BRISM28 level. This new firmware can be downloaded from <http://support.intel.com> (search for IXM5414E)
3. For meeting the EMC requirements, when IXM5414E with hardware p/n of C56082-003 is used, then only up to 2 such modules (with dongles) in a SBCE chassis is supported.
4. Up to 4 Switch modules can be used when IXM5414E modules with hardware p/n of C56082-010 are used. For more details, please see errata #2. In this case, all combinations of the number of IXM5414E modules and the SBCEGESW modules in a single chassis are supported.

Summary Tables

Table 1 is a summary table that indicates 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.

Codes Used in Summary Table

This table uses the following notations:

Hardware and Firmware Part Number

Intel® Blade Server Ethernet Switch Module IXM5414E is available with the following three hardware and firmware combinations:

- Hardware P/N C56082-003 and Firmware BRISM22
- Hardware P/N C56082-003 and Firmware BRISM28
- Hardware P/N C56082-010 and Firmware BRISM28

Each erratum has an individual status for each of the possible three combinations of hardware and firmware. The status indicates that the erratum has been fixed, may be fixed in a future release, or will not be fixed. (See Status below.)

Status

Doc:	Document change or update will be implemented.
Plan Fix:	This erratum may be fixed in a future stepping of the component.
Fixed:	This erratum has been previously fixed.
No Fix:	There are no plans to fix this erratum.

Page

(Page):	Location (page number) of the erratum in this document.
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Table 1. Errata List

ID	Page	C56082-003 & BRISM22	C56082-003 & BRISM28	C56082-010 & BRISM28	Erratum
1.	11	No Fix	No Fix	Fixed	"MCU code is not field upgradable"
2.	11	No Fix	No Fix	Fixed	"4x configuration does not pass with required EMC margin"
3.	11	No Fix	No Fix	Fixed	"IXM5414E accepts firmware of its Telco counterpart switch"
4.	12	No Fix	No Fix	No Fix	"Packet drops are observed in congestion scenario"
5.	12	No Fix	Fixed	Fixed	"Wake on LAN does not work on SBX44"
6.	12	No Fix	Fixed	Fixed	"Clear configuration CLI command does not prompt user"
7.	12	No Fix	Fixed	Fixed	"Saving the existing static IP address to the switch module disables the MM-switch IP interface"
8.	13	No Fix	Fixed	Fixed	"Automated power cycling test failures"
9.	13	No Fix	Fixed	Fixed	"Protocol Based VLAN is not supported"
10.	13	No Fix	Fixed	Fixed	"SNMP Agent returns incorrect error status for Wrong Length error condition"
11.	13	No Fix	No Fix	Plan Fix	"Event log faults observed during power cycling tests"
12.	14	No Fix	No Fix	Plan Fix	"Switch becomes unreachable when administration-mode is disabled for "ALL" Ports"
13.	14	No Fix	No Fix	Plan Fix	"Spurious pop-up error message observed when "ALL" ports are selected on the port configuration screen"
14.	14	No Fix	No Fix	Plan Fix	"Wrong CLI help option displayed for SSL configuration"
15.	14	No Fix	No Fix	No Fix	"With flow control enabled, two directly connected IXM5414Es may experience lock-up"
16.	15	No Fix	No Fix	Plan Fix	"Incorrect prompt displayed during upload of a configuration file"

Specification Changes

ID	Page	C56082-003 & BRISM22	C56082-003 & BRISM28	C56082-010 & BRISM28	Erratum
					None for this revision of this specification update.

Specification Clarifications

ID	Page	C56082-003 & BRISM22	C56082-003 & BRISM28	C56082-010 & BRISM28	Erratum
					None for this revision of this specification update.



Documentation Changes

No.	Document Revision	Page	Status	DOCUMENTATION CHANGES
1.	1.0	18	Fixed	"Static and dynamic IP acquisition UI/CLI-commands not documented in the Installation and User's guide"
2.	1.0	18	Fixed	"Screen captures display "Protocol-based VLAN" as an option in the left menu"

Errata

1. MCU code is not field upgradable

Problem: The MCU firmware within the switch module is not field upgradable. Any changes to the MCU code can be carried out only at 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 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 upgrades of the MCU Code.

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

Problem: EMC testing had lower than required margins for 4 switch configurations. At this point, only 2 switch configurations are supported. 2 switch configurations require dongles for all external ports to insure 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 allows the use of up to 4 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. A total 16 ferrite clamps are included in the IXM5414E with Hardware P/N C56082-010, sufficient for use on four external cables. 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 both - IXM5414E with Hardware P/N of C56082-010 and IXM5414E with hardware P/N of C56082-003.

5. Wake on LAN does not work on SBX44

Problem: WOL does not work on SBX44.

Implication: SBX44 can not be powered up using WOL packet.

Workaround: Power-up SBX44 through MM/IDM prior to attempting WOL via IXM5414E. Subsequently, the switch module will be able to switch WoL packets to the SBX44 blade.

Status: Fixed. Firmware version 1.0.0.28 enables IXM5414E to pass WOL packets to SBX44.

6. Clear configuration CLI command does not prompt user

Problem: The CLI command clear configuration clears all configuration to factory defaults and triggers a switch reboot without prompting the user confirm the action.

Implication: None.

Workaround: None.

Status: Fixed. Firmware version 1.0.0.28 prompts user for confirmation when clear config command is used.

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

Problem: Re-saving an existing IP address to the switch from the MM interface places the IP interface in the disabled state. This has no impact when switch is powered up.

Implication: If MM-switch interface is in the disabled state, the internal management path to the switch through the MM is broken. The switch will have to be managed through an external port while the MM-switch IP interface is in disabled state. Note that 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 session directly to the switch IP address for the 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 configuration). If MM-switch IP interface is in disabled state, assign a different static IP address to the switch, perform save, change the IP address to desired value and then perform save again to get the IP interface in enabled interface.

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 being down. No functional impact has been observed for both (b) and (c).

Workaround: When Bay ports have the link reported as being down, 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 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 Wrong Length error condition

Problem: SNMPv2c: Agent returns incorrect error status: “commitFailed instead of wrongLength”.

Implication: SNMP manager may display 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 the firmware version 1.0.0.28.

11. Event log faults observed during power cycling tests

Problem: During automated power cycling tests, the CMM event log reports “I/O module fault” occasionally.

Implication: No functional impact has been observed.

Workaround: This is a recoverable error & there is no functional impact on the switch module.

Status: Plan Fix. A software fix is currently under investigation.

12. Switch becomes unreachable when administration-mode is disabled for “ALL” Ports

Problem: When the administration-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 either ‘ping’-ed or managed using the web-based GUI or by CLI using telnet until it is reset from the management module web-based GUI.

Workaround: When the administration-mode needs to be disabled for “ALL” ports, the web-based GUI should not be used. Instead, CLI command “configuration port administration mode all disable” must be used to achieve the same purpose.

Status: Plan Fix. A software fix is under investigation.

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

Problem: When “ALL” ports option is selected from the drop down box while using the web-based GUI configuration for port configurations, occasionally a pop-up error message is observed stating “Error: Failed to Set Admin. Mode”.

Implication: There is no functional impact of this error message, except when “administration-mode” is set as disabled (see errata # 12). All ports are configured as per the selected option.

Workaround: Web-based GUI must not be used for configuring port parameters. Instead, CLI using a telnet session must be used.

Status: Plan Fix. A software fix is under investigation.

14. Wrong CLI help option displayed for SSL configuration

Problem: The CLI help message shows “datatype sslpem-strong” as an option for the data type selection when using secure download. The correct option is “datatype sslpem-dhstrong”.

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: Plan 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 IXM5414E 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 IXM5414E with hardware P/N of C56082-010 and IXM5414E with hardware P/N of C56082-003.

16. Incorrect prompt displayed during upload of a configuration file

Problem: When the user tries to upload a configuration file to the IXM5414E switch module using the web-based GUI, an incorrect user-prompt appears. The prompt displays the message “Download MCU code to switch?”, even though configuration file upload is not related to the MCU code upgrade.

Implication: There is no functional impact observed. The configuration file upload completes successfully, even though the prompt message is misleading.

Workaround: None.

Status: Plan Fix. A software fix is under investigation.

Specification Changes

None.



Specification Clarifications

None.

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 user 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 Install & User Guide has screen-captures that depict protocol-based VLAN as option in the left panel of the GUIx. The screen captures could be misleading since 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: Plan Fix in a future revision of *Intel® Blade Server Ethernet Switch Module IXM5414E: Installation and User's Guide*