



# **Intel<sup>®</sup> Ethernet Connection I218 Specification Update**

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*April 2013  
Revision 1.0*



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## Revision History

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Date	Revision	Description
April 2013	1.0	Initial Release (Intel Public).



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## 1.1 Introduction and Scope

This document applies to the Intel® Ethernet Controller I218.

This document is an update to a published specification, the *Intel® Ethernet Controller I218 Datasheet*. It is intended for use by system manufacturers and software developers. All product documents are subject to frequent revision, and new order numbers will apply. New documents may be added. Be sure you have the latest information before finalizing your design.

## 1.2 Product Code and Device Identification

Product Codes: WGI218LM and WGI218V (Commercial Copper).

The following tables and component drawings describe the various identifying markings on each device package:

**Table 1-1 Markings**

Device	Stepping	Top Marking	Description
I218LM	B1	WGI218LM	Production Commercial Copper
I218V	B1	WGI218V	Production Commercial Copper

**Table 1-2 Device IDs**

I218 Device ID Code	Vendor ID	Device ID
I218LM	0x8086	0x155A
I218V	0x8086	0x1559

**Table 1-3 MM Numbers**

Product	MM Number	Product Code	Media
WGI218LM (Production Commercial Copper)	926895	SLJK3A	Tape & Reel
WGI218LM (Production Commercial Copper)	926892	SLK3B	Tray
WGI218V (Production Commercial Copper)	926893	SLK3C	Tape & Reel
WGI218V (Production Commercial Copper)	926894	SLK3D	Tray

## 1.3 I218 Production Marking Diagrams



**Figure 1-1 I218 Production Top Marking Examples**

**Notes:**

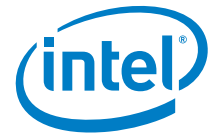
Line 1: With no spaces, "i"©YY  
 Line 2: Fab Lot Trace Code 01234567.8 (10-char max)  
 Line 3: Product Code and Pb-free mark (e3 or e1)

## 1.4 Nomenclature Used In This Document

This document uses specific terms, codes, and abbreviations to describe changes, errata and/or clarifications that apply to silicon/steppings. See [Table 1-5](#) for a description.

**Table 1-4 Terms, Codes, Abbreviations**

Name	Description
Specification Changes	Modifications to the current published specifications. These changes will be incorporated in the next release of the specifications.
Errata	Design defects or errors. Errata may cause device behavior to deviate from published specifications. Hardware and software designed to be used with any given stepping must assume that all errata documented for that stepping are present on all devices.
Specification Clarifications	Greater detail or further highlights concerning a specification's impact to a complex design situation. These clarifications will be incorporated in the next release of the specifications.
Documentation Changes	Typos, errors, or omissions from the current published specifications. These changes will be incorporated in the next release of the specifications.
Yes or No	If the errata applies to a stepping, "Yes" is indicated for the stepping (for example: "A0=Yes" indicates errata applies to stepping A0). If the errata does not apply to stepping, "No" is indicated (for example: "A0=No" indicates the errata does not apply to stepping A0).
Doc	Document change or update that will be implemented.
Fix	This erratum is intended to be fixed in a future stepping of the component.
Fixed	This erratum has been previously fixed.
NoFix	There are no plans to fix this erratum.
Eval	Plans to fix this erratum are under evaluation.



<b>Name</b>	<b>Description</b>
(No mark) or (Blank box)	This erratum is fixed in listed stepping or specification change does not apply to listed stepping.
<b>Red Change Bar/or Bold</b>	This Item is either new or modified from the previous version of the document.
DS	Data Sheet
DG	Design Guide
SDM	Software Developer's Manual
EDS	External Data Specification
AP	Application Note



## 1.5 Hardware Sightings, Clarifications, Changes, Updates and Errata

See Section 1.4 for an explanation of terms, codes, and abbreviations.

**Table 1-5 Summary of Hardware Clarifications, Changes and Errata; Errata Include Steppings**

Specification Changes	Status
None.	N/A
Specification Clarifications	Status
1. Expected Link Down Behavior	N/A
Documentation Updates	Status
None	
Errata	Status
1. 10BASE-T TP_IDLE Mask Failure	B1 NoFix
2. 1000BASE-T Distortion (IEEE 2008 Spec Limitation)	B1 NoFix
3. Performance Degradation is Possible with Streams of 9KB Jumbo Frame Packets	B1 NoFix

### 1.5.1 Specification Changes

None at this time.

### 1.5.2 Specification Clarifications

#### 1. Expected Link Down Behavior

When a network cable is removed from an active system, the link LED remains lit about two to five seconds. This is expected behavior for a link down.

### 1.5.3 Documentation Changes

None at this time.





## 1.5.4 Errata

### 1. 10BASE-T TP\_IDLE Mask Failure

#### Problem:

The 10BASE-T link pulse wave form touches the template mask due to a small voltage glitch when switching from active to low-power mode. Some designs might have a mask failure on the 10BASE-T (1411.10.06) TP\_IDLE, both with and without the TPM (Twisted Pair Model).

#### Implication:

No implication on system level performance or interoperability. The IEEE conformance test is the only impact.

#### Workaround:

None.

#### Status:

B1 NoFix

### 2. 1000BASE-T Distortion (IEEE 2008 Spec Limitation)

#### Problem:

1000BASE-T IEEE 2008 distortion specification (40.6.1.2.4); a PHY is considered to pass this test if the peak distortion is below 10mV for at least 60% of the UI within the eye opening. The I218 Gigabit Ethernet Controller may marginally fail this requirement at the HTLV corner. At nominal operating conditions using the latest NVM (version 1.2 or later), the I218 will pass.

#### Implication:

No implication on system level performance or interoperability. The only impact is the IEEE test conformance.

#### Workaround:

None.

#### Status:

B1 NoFix



### 3. Performance Degradation is Possible with Streams of 9KB Jumbo Frame Packets

**Problem:**

When a platform sends a long burst of back-to-back jumbo frames (size is 9 KB) and the Inter-Packet Gap (IPG) is minimal, the performance can be degraded with up to 1/2500 packets lost.

**Implication:**

The system experiences performance degradation when using 9 KB jumbo frames sent back-to-back with a minimal IPG.

**Workaround:**

None.

**Note:** Reducing the MTU/maximum jumbo frame size to 8.5 KB eliminates the possibility of performance degradation.

**Status:**

B1 NoFix

## 2. Software Clarifications

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**Table 1-1 Summary of Software Clarifications**

Software Clarifications	Status
None.	N/A