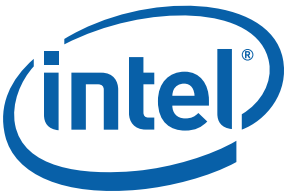

Intel® G31/P31 Express Chipset

Specification Update

— For the Intel® 82G31 Graphics and Memory Controller Hub (GMCH) and Intel® 82GP31 Memory Controller Hub (MCH)

February 2008

Notice: The Intel® G31/P31 Express Chipset may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request.

Order Number: 317496-003

Contents

Revision History

Revision	Description	Date
-001	• Initial Release	July 2007
-002	• Added Errata #2	August 2007
-003	• Added B0 stepping details	February 2008

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Preface

This document is an update to the specifications contained in the Affected Documents/ Related Documents table below. This document is a compilation of device and documentation errata, specification clarifications and changes. It is intended for hardware system manufacturers and software developers of applications, operating systems, or tools.

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

Title	Number
Intel® G31/P31 Express Chipset Datasheet	317495-001

Nomenclature

Errata are design defects or errors. These may cause the Intel 82G31/82P31 (G)MCH 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 Changes are modifications to the current published specifications. These changes will be incorporated in any new release of the specification.

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.

Note: Errata remain in the specification update throughout the product's lifecycle or until a particular stepping is no longer commercially available. Under these circumstances, errata removed from the specification update are archived and available upon request. Specification changes, specification clarifications and documentation changes are removed from the specification update when the appropriate changes are made to the appropriate product specification or user documentation (datasheets, manuals, etc.).

Summary Tables of Changes

The following tables indicate the errata, specification changes, specification clarifications, or documentation changes which apply to the Intel 82G31/82P31 (G)MCH product. Intel may fix some of the errata in a future stepping of the component, and account for the other outstanding issues through documentation or specification changes as noted. These tables uses the following notations:

Codes Used in Summary Tables

Stepping

X:	Errata exists in the stepping indicated. Specification Change or Clarification that applies to this stepping.
(No mark) or (Blank box):	This erratum is fixed in listed stepping or specification change does not apply to listed stepping.

Page

(Page):	Page location of item in this document.

Status

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

Row

Change bar to left of table row indicates this erratum is either new or modified from the previous version of the document.

Errata

No.	Steppings	Status	Errata
	A2		
1	X	No Fix	Graphics Debug Reset
2	X	No Fix	Visual Corruption with Integrated Graphics & Intel® Flex Memory Technology Enabled using Microsoft* Windows Vista*

Specification Changes

No.	Specification Changes
	There are no specification changes in this revision of the specification update.

Specification Clarifications

No.	Specification Clarifications
	There are no specification clarifications in this revision of the specification update.

Documentation Changes

No.	Documentation Changes
	There are no documentation changes in this revision of the specification update.

Identification Information

Component Identification via Programming Interface

The Intel® G31 Express Chipset may be identified by the following register contents.

Stepping	Vendor ID	Device ID	Revision ID	Notes
A2	8086h	29C0h	02h	Intel® G31 Express Chipset
B0	8086h	29C0h	10h	Intel® G31 Express Chipset

The Intel® P31 Express Chipset may be identified by the following register contents.

Stepping	Vendor ID	Device ID	Revision ID	Notes
A2	8086h	29C0h	02h	Intel® P31 Express Chipset
B0	8086h	29C0h	10h	Intel® P31 Express Chipset

Notes:
1. Vendor ID corresponds to bits 15:0 of the Vendor ID register located at offset 00-01h in the PCI function 0 configuration space.
2. Device ID corresponds to bits 15:0 of the Device ID register located at offset 02-03h in the PCI function 0 configuration space.
3. Revision Number corresponds to bits 7:0 of the Revision ID register located at offset 08h in the PCI function 0 configuration space.

Component Marking Information

The Intel® G31/P31 Express Chipsets may be identified by the following register content.

Stepping	Product	S-Spec #	Top Marking	Notes
A2	GMCH	SLAJ3	LE82G31	Intel® G31 Express Chipset Production Sample
A2	GMCH	SLAHX	LE82P31	Intel® P31 Express Chipset Production Sample
B0	GMCH	SLASJ	LE82G31	Intel® G31 Express Chipset Production Sample
B0	GMCH	SLASK	LE82P31	Intel® P31 Express Chipset Production Sample

Errata

1. Graphics Debug Reset

Problem: If the Graphics Reset Enable (PCI Bus 0 Device 2 Function 0; offset C0h, bit 0) is set and there are new cursor, display, or overlay engine commands, the internal graphics may not be able to complete its reset.

Implication: Since the internal graphics may not be able to be reset, the system may hang or have video corruption.

Workaround: Disable the cursor, display, and overlay engines. Wait 1 uS. Issue the graphics reset by setting this bit to 1. The Intel® Graphics Media Accelerator driver implements this workaround.

Status: No Fix - See *Summary of Tables* for affected steppings.

2. Visual Corruption with Integrated Graphics & Intel Flex Memory Technology Enabled Using Microsoft Windows Vista*

Problem: Visual corruption is observed with the Intel® G31 GMCH using new Microsoft Windows Vista* paging model when Intel® Flex Memory Technology is enabled in the Dual Channel Asymmetrice Configuration

Implication: Visual graphics corruption on the display when running 3D applications.

Workaround: Use latest Intel® Graphics Driver (Revision 15.4.4 or newer).

Status: NoFix - See *Summary of Tables* for affected steppings.

Specification Changes

There are no specification changes in this revision of the specification update.

Specification Clarifications

There are no specification clarifications in this revision of the specification update.

Documentation Changes

There are no documentation changes in this revision of the specification update.

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