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Migrating from the Intel 21150 to the Tsi350™ PCI-to-PCI Bridge

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1. Migrating from the Intel 21150 to the Tsi350 PCI-to-PCI Bridge

This application note details the differences between the Tsi350 and the Intel 21150. The following topics are discussed in this application note:

- "Overview" on page 3
- "Feature Compatibility" on page 3
- "Software Compatibility" on page 4
- "Package Compatibility" on page 5

1.1 Overview

The Tsi350 can be used as a drop in replacement for the Intel 21150 without any modifications to an existing board design.

1.2 Feature Compatibility

The Tsi350 is feature and pinout compatible with the Intel 21150 with the exception of the following.

1.2.1 Mode Select Inputs

The Mode Select Inputs are a Tsi350 feature that can be used to configure the Tsi350 for different modes of operation. Table 1 on page 4 describes the Tsi350 Mode Select Input functionality.

1.2.1.1 208-pin PQFP

The Tsi350 defines the Mode Select Inputs (MS0 and MS1) on pins 155 and 106. The Intel 21150 defines pin 155 as VDD and pin 106 as VSS. The Tsi350 is a direct replacement for the Intel 21150 without making any board modification.

1.2.1.2 256-pin PBGA

The Tsi350 defines the Mode Select Inputs (MS0 and MS1) on pins B14 and R16. The Intel 21150 defines pin B14 as VDD and pin R16 as VSS. The Tsi350 is a direct replacement for the Intel 21150 without making any board modification.

Table 1: Tsi350 Mode Select Inputs

MS0 (Pin 155)	MS1 (Pin 106)	Mode
0	0	Compact PCI Hot-swap friendly PCI Bus Power Management Interface Specification (Rev. 1.1). GPIO[3] functions as HS_SWITCH_N. Synchronous Mode (P_CLK used as source for S_CLK_O[9:0]).
1	X	Compact PCI Hot-swap disabled. PCI Bus Power Management Interface Specification (Rev. 1.1). GPIO[3] functions as GPIO[3]. Synchronous Mode (P_CLK used as source for S_CLK_O[9:0]).
0	1	Compact PCI Hot-swap disabled. PCI Bus Power Management Interface Specification (Rev. 1.1). GPIO[3] functions as GPIO[3]. Synchronous Mode (P_CLK used as source for S_CLK_O[9:0]).
1	1	Asynchronous Mode (MSK_IN is used as the source for S_CLK_O[9:0]).

1.2.2 Fast Back-to-Back Transactions

The Intel 21150 supports fast back-to-back transactions as both a target and a master. The Tsi350 supports fast back-to-back transactions as a target, but does not have the ability to generate fast back-to-back transactions as a master.

1.3 Software Compatibility

The Tsi350 is fully software compatible with the Intel 21150 within the standard PCI configuration space, with the exception of the values returned by the vendor ID, device ID, and revision ID registers.

Refer to the Tsi350 *User Manual* for more information on using device specific features and registers which are outside the standard PCI configuration space.

1.3.1 Vendor ID Register, Offset 01h – 00h

The Intel 21150 returns 16’h104C when this register is read.

Bits	Type	Value on Reset	Description
15:0	R	16’h1142	**Vendor ID** This 16-bit read only field contains vendor ID allocated by the PCI SIG. All bits in this register are read only.

1.3.2 Device ID Register, Offset 03h – 02h

The Intel 21150 returns 16'hAC28 when this register is read.

Bits	Type	Value on Reset	Description
15:0	R	16’h0150	**Device ID** This 16-bit field represents Tsi350 bridge device.

1.3.3 Revision ID Register, Offset 08h

The Intel 21150 returns 8’h02 for a read to this register.

Bits	Type	Value on Reset	Description
7:4	R	8’h0	Revision ID This field specifies the Revision ID for the Tsi350 bridge device.

1.4 Package Compatibility

The Tsi350 is drop in pin compatible with the Intel 21150. The Tsi350 is available in 208-QFP and 256-BGA packages.

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