PCI SIG

PCI-SIG ENGINEERING CHANGE NOTICE

TITLE:	Wireless Disable
DATE:	January 26, 2004
AFFECTED DOCUMENT:	PCI Express Mini Card, Release 1.0
SPONSOR:	Brad Saunders, Intel Corporation

Part I

1.   Summary of the Functional Changes

This change request proposes to add functionality to a previously reserved Mini Card pin to allow the host system to directly control radio applications for the purpose of disabling wireless (RF) operation to meet regulatory requirements.

2.   Benefits as a Result of the Changes

This feature enables radio application developers to meet regulatory requirements related to operation of wireless-enabled personal computers in locations where public safety is potentially at risk if the RF portion of a wireless application is active, i.e. eliminating changes for RF interference between a PC hosted radio and the electronics/communications systems of public transportation such as a commercial airline.

3.   Assessment of the Impact

The proposal is for a new required feature of Mini Cards and host systems that would only have relevance to applications that incorporate radio frequency technology. Backward compatibility is not an issue since given that only one side of the interface is implemented, the operational impact would the lack of support for this function without any adverse affects on either device. Non-implementation could result in the non-supported device to be prohibited for use in locations and/or at times that public authorities dictate.

4.   Analysis of the Hardware Implications

In order to implement, requires radio application Mini Cards to use the signal to directly control whether the RF transmits/receive section of the product is enabled or disabled, independent of other application preferences regarding RF operation. The feature does not have any direct relevance to the operation of the rest of the Mini Card interface. For host systems, support of this signal presumes the implementation of a selection switch that provides the override radio control that satisfies regulatory requirements for safe operation of the host platform.

5.   Analysis of the Software Implications

There is no requirement to modify software related to the implementation of the Mini Card interface. Radio applications software may be impacted by the loss of RF functionality. The software directly associated with the supporting Mini Card would presumably be aware of this feature and its behavior appropriately modified. Higher-level applications would simply deal with the loss of RF functionality in a manner similar to managing communications loss for other common reasons.

Part II

Change Table 3-1, page 26, to add the following row as shown:

Signal Group	Signal	Direction	Description
Communications Specific Signals	LED_WPAN#, LED_WLAN#, LED_WWAN#	Output	Active low signals. These signals are used to allow the PCI Express Mini Card add-in card to provide status indicators via LED devices that will be provided by the system.
	W_DISABLE#	Input	Active low signal. This signal is used by the system to disable radio operation on add-in cards that implement radio frequency applications.

Add Section 3.2.5.2 as follows:

3.2.5.2. W_DISABLE# Signal

The W_DISABLE# signal is provided to allow wireless communications add-in cards to allow users to disable, via a system-provided switch, the add-in card's radio operation in order to meet public safety regulations or when otherwise desired. Implementation of this signal is required for systems and all add-in cards that implement radio frequency capabilities.

The W_DISABLE# signal is an active low signal that when driven low by the system shall disable radio operation. The assertion and de-assertion of the W_DISABLE# signal is asynchronous to any system clock. All transients resulting from mechanical switches need to be de-bounced by system circuitry. When the W_DISABLE# signal is asserted, all radios attached to the add-in card shall be disabled. When the W_DISABLE# is not asserted or in an high impedance state, the radio may transmit if not disabled by other means such as software. This signal shall be capable of sinking to ground a minimum of 1 mA per add-in card.

In normal operation, the add-in card must cease any transmissions within one second after the W_DISABLE# signal is asserted. The add-in card should initiate and indicate to the user the process of resuming normal operation within one second of de-assertion of the W_DISABLE# signal. Due to the potential of a software disable state, the combination of both the software state and assertion state must be determined before resuming normal operation.

The system is required to assure that W_DISABLE# be in a deterministic state (asserted or de-asserted) whenever power is applied to the add-in, i.e. whenever either +3.3V or +3.3Vaux is present.

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Change Table 3-4, page 31, as follows:

Pin #	Name
20	W_DISABLE#

Deleted: Reserved***

Change Table 3-4, page 31, to remove the following note:

Deleted: *** Reserved for future wireless disable signal (if needed)