

**Proposed
Draft**

**Serial ATA
International Organization**

**Revision 03
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**Serial ATA Technical Proposal: SATA31_TPR_D149
Title : Software Settings Preservation for Device Initiated
Interface Power Management
Sponsors: Intel**

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Author Information

Authors	Company	Email address
James Boyd	Intel	james.a.boyd@intel.com

Document History

Version	Date	Comments
00	01/02/2012	<ul style="list-style-type: none">Initial release.
01	01/17/2012	<ul style="list-style-type: none">Updated based on feedback. Update SSP section and add bit definition
02	01/30/2012	<ul style="list-style-type: none">Final modifications based on meeting feedback –minor editorial
03	02/6/2012	<ul style="list-style-type: none">Fixed headers

1 Introduction

With the introduction of Device Sleep, more and more devices will regularly go through COMINIT/COMRESET sequences. This will result in features needing to be restored on the device after exiting the DevSleep interface state. Most features are preserved by the device via Software Settings Preservation. One common feature not supported by Software Settings Preservation is Device Initiated Interface Power Management. This is a highly used/required feature for low power systems. To avoid additional exit latencies due to features being reprogrammed by the host exiting the DevSleep interface state, Device Initiated Interface Power Management should be added to Software Settings Preservation.

2 Technical Specification Changes

The following additions are based on the content of Serial ATA Revision 3.1, 18-July-2011. Proposed additions to SATA 3.1 text are marked in **blue**. Proposed deletions to SATA 3.1 text are marked in **red**. Black text is the original SATA 3.1 text. Section headers correspond to the section in SATA 3.1 into which the proposed text is to be inserted.

3 [editor's note: 13.2] IDENTIFY (PACKET) DEVICE

3.1 [editor's note: 13.2.1] IDENTIFY DEVICE

78	O		Serial ATA features supported
		F	15-10 Reserved
		F	9 1 = Device Supports Device Initiated Interface Power Management Software Settings Preservation
		F	8 1= Device Sleep supported
		F	7 1 = Supports NCQ Autosense
			6 1 = Supports software settings preservation
		F	5 Reserved
		F	4 1 = Supports in-order data delivery
		F	3 1 = Device supports initiating interface power management
		F	2 1 = Supports DMA Setup Auto-Activate optimization
		F	1 1 = Supports non-zero buffer offsets in DMA Setup FIS
		F	0 Shall be cleared to zero

3.2 [editor's note: 13.2.1.18] Word 78: Serial ATA features supported

Bit 9 indicates that the device supports persistence of the Device Initiated Interface Power Management enable/disable setting via Software Settings Preservation.

4 [editor's note: 13.5] Software Settings Preservation (Optional)

...

The software settings that shall be preserved across COMRESET are listed below. The device is only required to preserve the indicated software setting if it supports the particular feature/command the setting is associated with.

...

SET FEATURES (Device Initiated Interface Power Management): The Device Initiated Interface Power Management enable/disable setting (Word 79, bit 3 of Identify Device) established by the SET FEATURES command with a Subcommand code of 10h or 90h.

...

5 [editor's note: 13.5] Enable/Disable Device-Initiated Interface Power State Transitions

A Count(7:0) value of 03h is used by the host to enable or disable device initiation of interface power state transitions. By default, the device is not permitted to attempt interface power state transitions by issuing PMREQ_PP or PMREQ_SP to the host. The host may enable device initiation of such interface power state transitions for such cases where it may be desirable for the device to attempt initiating such transitions. The enable/disable state for device initiated power management shall persist across software reset. The enable/disable state shall be reset to its default disabled state upon COMRESET **only if the device does not support Device Initiated Interface Power Management Software Settings Preservation (see section 13.2.1.18). If Software Settings Preservation is enabled and Device Initiated Interface Power Management Software Settings Preservation is supported, then the enable/disable state shall persist across a COMRESET.** If device initiated interface power management is enabled, the device shall not attempt to initiate an interface power state transition between reset and the delivery of the device reset signature.