

# [PATCH] Improve pci\_alloc\_consistent wrapper on preemptive kernels

*Source:* <http://linux.derkeiler.com/Mailing-Lists/Kernel/2004-07/6209.html>

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This is a minor optimization for the pci\_alloc\_consistent wrapper for the generic dma API. When the kernel is compiled preemptive the caller can decide if the allocation needs to be GFP\_KERNEL or GFP\_ATOMIC.

I had this optimization previously in x86-64 private code, but it needs to move up now that x86-64 uses the generic DMA API.

```
diff -urpN -X ../KDIFX linux-2.6.8rc2-mm1/include/asm-generic/pci-dma-compat.h
linux-2.6.8rc2-mm1-amd64/include/asm-generic/pci-dma-compat.h
--- linux-2.6.8rc2-mm1/include/asm-generic/pci-dma-compat.h 2004-04-06 13:12:19.000000000 +0200
+++ linux-2.6.8rc2-mm1-amd64/include/asm-generic/pci-dma-compat.h 2004-07-30
17:02:49.000000000 +0200
@@ -5,6 +5,13 @@
#define _ASM_GENERIC_PCI_DMA_COMPAT_H

#include <linux/dma-mapping.h>
#include <linux/config.h>
+
+#ifdef CONFIG_PREEMPT
+#define preempt_atomic() in_atomic()
+#else
+#define preempt_atomic() 1
+#endif

/* note pci_set_dma_mask isn't here, since it's a public function
 * exported from drivers/pci, use dma_supported instead */
@@ -15,11 +22,12 @@ pci_dma_supported(struct pci_dev *hwdev,
    return dma_supported(hwdev == NULL ? NULL : &hwdev->dev, mask);
}

+/* Would be better to move this out of line. It's already quite big. */
static inline void *
pci_alloc_consistent(struct pci_dev *hwdev, size_t size,
    dma_addr_t *dma_handle)
{
```

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```
- return dma_alloc_coherent(hwdev == NULL ? NULL : &hwdev->dev, size, dma_handle, GFP_ATOMIC);  
+ return dma_alloc_coherent(hwdev == NULL ? NULL : &hwdev->dev, size, dma_handle,  
preempt_atomic() ? GFP_ATOMIC : GFP_KERNEL);  
}
```

static inline void

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