

[PATCH] [12/34] i386: __send_IPI_dest_field - i386

Source: <http://linux.derkeiler.com/Mailing-Lists/Kernel/2007-04/msg12087.html>

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 - *Date:* Mon, 30 Apr 2007 17:49:44 +0200 (CEST)
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From: Fernando Luis [**** ISO-8859-1 charset ****] VázquezCao <fernando@xxxxxxxxxxxxxx>
Implement __send_IPI_dest_field which can be used to send IPIs when the "destination shorthand" field of the ICR is set to 00 (destination field). Use it whenever possible.

Signed-off-by: Fernando Luis Vazquez Cao <fernando@xxxxxxxxxxxxxx>
Signed-off-by: Andi Kleen <ak@xxxxxxx>

arch/i386/kernel/smp.c | 47 ++++++-----
1 file changed, 18 insertions(+), 29 deletions(-)

Index: linux/arch/i386/kernel/smp.c

```
----- linux.orig/arch/i386/kernel/smp.c
+++ linux/arch/i386/kernel/smp.c
@@ -165,16 +165,13 @@ void fastcall send_IPI_self(int vector)
 }

/*
- * This is only used on smaller machines.
+ * This is used to send an IPI with no shorthand notation (the destination is
+ * specified in bits 56 to 63 of the ICR).
*/
-void send_IPI_mask_bitmask(cpumask_t cpumask, int vector)
+static inline void __send_IPI_dest_field(unsigned long mask, int vector)
{
- unsigned long mask = cpus_addr(cpumask)[0];
unsigned long cfg;
- unsigned long flags;

- local_irq_save(flags);
- WARN_ON(mask & ~cpus_addr(cpu_online_map)[0]);
/*
* Wait for idle.
*/
```

```

@@ -195,13 +192,25 @@ void send_IPI_mask_bitmask(cpumask_t cpu
 * Send the IPI. The write to APIC_ICR fires this off.
 */
apic_write_around(APIC_ICR, cfg);
+}

+/*
+ * This is only used on smaller machines.
+ */
+void send_IPI_mask_bitmask(cpumask_t cpumask, int vector)
+{
+ unsigned long mask = cpus_addr(cpumask)[0];
+ unsigned long flags;
+
+ local_irq_save(flags);
+ WARN_ON(mask & ~cpus_addr(cpu_online_map)[0]);
+ __send_IPI_dest_field(mask, vector);
+ local_irq_restore(flags);
+ }

void send_IPI_mask_sequence(cpumask_t mask, int vector)
{
- unsigned long cfg, flags;
+ unsigned long flags;
+ unsigned int query_cpu;

/*
@@ -211,30 +220,10 @@ void send_IPI_mask_sequence(cpumask_t ma
 */

local_irq_save(flags);
-
for (query_cpu = 0; query_cpu < NR_CPUS; ++query_cpu) {
if (cpu_isset(query_cpu, mask)) {
-
- /*
- * Wait for idle.
- */
- apic_wait_icr_idle();
-
- /*
- * prepare target chip field
- */
- cfg = __prepare_ICR2(cpu_to_logical_apicid(query_cpu));
- apic_write_around(APIC_ICR2, cfg);
-
- /*
- * program the ICR
- */
- cfg = __prepare_ICR(0, vector);
-

```

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```
– /*  
– * Send the IPI. The write to APIC_ICR fires this off.  
– */  
– apic_write_around(APIC_ICR, cfg);  
+ __send_IPI_dest_field(cpu_to_logical_apicid(query_cpu),  
+ vector);  
}  
}  
local_irq_restore(flags);  
–
```

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