Subject: [RFC][PATCH] Static init struct pid for swapper
Posted by Sukadev Bhattiprolu on Sat, 13 Jan 2007 21:57:00 GMT
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From: Sukadev Bhattiprolu <sukadev@us.ibm.com>
Subject: Statically initialize struct pid for swapper

Statically initialize a struct pid for the swapper process (pid_t == 0)
and attach it to init_task. This is needed so task_pid(), task_pgrp()
and task_session() interfaces work on the swapper process also.

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---
 arch/alpha/kernel/init_task.c | 1 +
 arch/arm/kernel/init_task.c | 1 +
 arch/arm26/kernel/init_task.c | 1 +
 arch/avr32/kernel/init_task.c | 1 +
 arch/frv/kernel/init_task.c | 1 +
 arch/h8300/kernel/init_task.c | 1 +
 arch/i386/kernel/init_task.c | 1 +
 arch/ia64/kernel/init_task.c | 1 +
 arch/m32r/kernel/init_task.c | 1 +
 arch/m68knommu/kernel/init_task.c | 1 +
 arch/mips/kernel/init_task.c | 1 +
 arch/parisc/kernel/init_task.c | 1 +
 arch/powerpc/kernel/init_task.c | 1 +
 arch/s390/kernel/init_task.c | 1 +
 arch/sh/kernel/init_task.c | 1 +
 arch/sh64/kernel/init_task.c | 1 +
 arch/sparc/kernel/init_task.c | 1 +
 arch/sparc64/kernel/init_task.c | 1 +
 arch/um/kernel/init_task.c | 1 +
 arch/v850/kernel/init_task.c | 1 +
 arch/x86_64/kernel/init_task.c | 1 +
 include/linux/init_task.h | 33 ++++++++++++++++++++++++++++++++++
 22 files changed, 54 insertions(+)

Index: lx26-20-rc2-mm1/arch/x86_64/kernel/init_task.c
===
--- lx26-20-rc2-mm1.orig/arch/x86_64/kernel/init_task.c 2007-01-13 04:38:35.892740080 -0800
+++ lx26-20-rc2-mm1/arch/x86_64/kernel/init_task.c 2007-01-13 04:57:58.930931400 -0800
@@ -14,6 +14,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;

```
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);

 EXPORT_SYMBOL(init_mm);
Index: lx26-20-rc2-mm1/include/linux/init_task.h
===================================================================
--- lx26-20-rc2-mm1.orig/include/linux/init_task.h 2007-01-13 04:38:35.893739928 -0800
+++ lx26-20-rc2-mm1/include/linux/init_task.h 2007-01-13 05:25:52.178559096 -0800
@@ -88,6 +88,19 @@ extern struct nsproxy init_nsproxy;

 extern struct group_info init_groups;

+#define INIT_STRUCT_PID {      \
+ .count   = ATOMIC_INIT(1),    \
+ .nr  = 0,       \
+ /* Do we need to put this struct pid in pid_hash ? */  \
+ .pid_chain = { .next = NULL, .pprev = NULL },  \
+ .tasks   =  {       \
+  { .first = &init_task.pids[PIDTYPE_PID].node },  \
+  { .first = &init_task.pids[PIDTYPE_PGID].node }, \
+  { .first = &init_task.pids[PIDTYPE_SID].node },  \
+ },         \
+ .rcu  = RCU_HEAD_INIT,     \
+}
+
 /*
  *  INIT_TASK is used to set up the first task table, touch at
  * your own risk!. Base=0, limit=0x1fffff (=2MB)
@@ -139,6 +152,26 @@ extern struct group_info init_groups;
  .cpu_timers = INIT_CPU_TIMERS(tsk.cpu_timers),  \
  .fs_excl = ATOMIC_INIT(0),    \
  .pi_lock = SPIN_LOCK_UNLOCKED,    \
+ .pids = {       \
+  { .node = {      \
+    .next = NULL,     \
+     .pprev = &init_struct_pid.tasks[PIDTYPE_PID].first,\
+    },       \
+    .pid = &init_struct_pid,    \
+  },       \
+  { .node = {      \
+    .next = NULL,     \
+     .pprev = &init_struct_pid.tasks[PIDTYPE_PGID].first,\
+    },       \
+    .pid = &init_struct_pid,    \
+  },       \
+  { .node = {      \
```

```
+    .next = NULL,     \
+     .pprev = &init_struct_pid.tasks[PIDTYPE_SID].first,\
+    },       \
+    .pid = &init_struct_pid,    \
+  },       \
+ }       \
  INIT_TRACE_IRQFLAGS      \
  INIT_LOCKDEP       \
 }
Index: lx26-20-rc2-mm1/arch/alpha/kernel/init_task.c
===================================================================
--- lx26-20-rc2-mm1.orig/arch/alpha/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
+++ lx26-20-rc2-mm1/arch/alpha/kernel/init_task.c 2007-01-13 12:41:56.745940256 -0800
@@ -12,6 +12,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);
 struct task_struct init_task = INIT_TASK(init_task);

Index: lx26-20-rc2-mm1/arch/arm/kernel/init_task.c
===================================================================
--- lx26-20-rc2-mm1.orig/arch/arm/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
+++ lx26-20-rc2-mm1/arch/arm/kernel/init_task.c 2007-01-13 12:42:18.614615712 -0800
@@ -16,6 +16,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);

 EXPORT_SYMBOL(init_mm);
Index: lx26-20-rc2-mm1/arch/arm26/kernel/init_task.c
===================================================================
--- lx26-20-rc2-mm1.orig/arch/arm26/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
+++ lx26-20-rc2-mm1/arch/arm26/kernel/init_task.c 2007-01-13 12:42:12.116603560 -0800
@@ -19,6 +19,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);

 EXPORT_SYMBOL(init_mm);
Index: lx26-20-rc2-mm1/arch/avr32/kernel/init_task.c
===================================================================
--- lx26-20-rc2-mm1.orig/arch/avr32/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
```

```
+++ lx26-20-rc2-mm1/arch/avr32/kernel/init_task.c 2007-01-13 12:42:25.664543960 -0800
@@ -17,6 +17,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);

 EXPORT_SYMBOL(init_mm);
Index: lx26-20-rc2-mm1/arch/frv/kernel/init_task.c
===================================================================
--- lx26-20-rc2-mm1.orig/arch/frv/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
+++ lx26-20-rc2-mm1/arch/frv/kernel/init_task.c 2007-01-13 12:42:37.605728624 -0800
@@ -14,6 +14,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);

 EXPORT_SYMBOL(init_mm);
Index: lx26-20-rc2-mm1/arch/h8300/kernel/init_task.c
===================================================================
--- lx26-20-rc2-mm1.orig/arch/h8300/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
+++ lx26-20-rc2-mm1/arch/h8300/kernel/init_task.c 2007-01-13 12:42:42.575973032 -0800
@@ -16,6 +16,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);

 EXPORT_SYMBOL(init_mm);
Index: lx26-20-rc2-mm1/arch/i386/kernel/init_task.c
===================================================================
--- lx26-20-rc2-mm1.orig/arch/i386/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
+++ lx26-20-rc2-mm1/arch/i386/kernel/init_task.c 2007-01-13 12:42:52.308493464 -0800
@@ -14,6 +14,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);

 EXPORT_SYMBOL(init_mm);
Index: lx26-20-rc2-mm1/arch/ia64/kernel/init_task.c
===================================================================
--- lx26-20-rc2-mm1.orig/arch/ia64/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
```

```
+++ lx26-20-rc2-mm1/arch/ia64/kernel/init_task.c 2007-01-13 12:43:03.647769632 -0800
@@ -20,6 +20,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);

 EXPORT_SYMBOL(init_mm);
Index: lx26-20-rc2-mm1/arch/m32r/kernel/init_task.c
===================================================================
--- lx26-20-rc2-mm1.orig/arch/m32r/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
+++ lx26-20-rc2-mm1/arch/m32r/kernel/init_task.c 2007-01-13 12:43:08.006107064 -0800
@@ -15,6 +15,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);

 EXPORT_SYMBOL(init_mm);
Index: lx26-20-rc2-mm1/arch/m68knommu/kernel/init_task.c
===================================================================
--- lx26-20-rc2-mm1.orig/arch/m68knommu/kernel/init_task.c 2006-11-29 13:57:37.000000000
-0800
+++ lx26-20-rc2-mm1/arch/m68knommu/kernel/init_task.c 2007-01-13 12:43:23.268786784 -0800
@@ -16,6 +16,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);

 EXPORT_SYMBOL(init_mm);
Index: lx26-20-rc2-mm1/arch/mips/kernel/init_task.c
===================================================================
--- lx26-20-rc2-mm1.orig/arch/mips/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
+++ lx26-20-rc2-mm1/arch/mips/kernel/init_task.c 2007-01-13 12:43:28.325018120 -0800
@@ -13,6 +13,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);

 EXPORT_SYMBOL(init_mm);
Index: lx26-20-rc2-mm1/arch/parisc/kernel/init_task.c
===================================================================
```

```
--- lx26-20-rc2-mm1.orig/arch/parisc/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
+++ lx26-20-rc2-mm1/arch/parisc/kernel/init_task.c 2007-01-13 12:43:40.204212208 -0800
@@ -37,6 +37,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);

 EXPORT_SYMBOL(init_mm);
Index: lx26-20-rc2-mm1/arch/powerpc/kernel/init_task.c
===================================================================
--- lx26-20-rc2-mm1.orig/arch/powerpc/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
+++ lx26-20-rc2-mm1/arch/powerpc/kernel/init_task.c 2007-01-13 12:43:44.629539456 -0800
@@ -11,6 +11,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);

 EXPORT_SYMBOL(init_mm);
Index: lx26-20-rc2-mm1/arch/s390/kernel/init_task.c
===================================================================
--- lx26-20-rc2-mm1.orig/arch/s390/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
+++ lx26-20-rc2-mm1/arch/s390/kernel/init_task.c 2007-01-13 12:43:54.629019304 -0800
@@ -19,6 +19,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);

 EXPORT_SYMBOL(init_mm);
Index: lx26-20-rc2-mm1/arch/sh/kernel/init_task.c
===================================================================
--- lx26-20-rc2-mm1.orig/arch/sh/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
+++ lx26-20-rc2-mm1/arch/sh/kernel/init_task.c 2007-01-13 12:45:33.954919472 -0800
@@ -11,6 +11,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);

 EXPORT_SYMBOL(init_mm);
Index: lx26-20-rc2-mm1/arch/sh64/kernel/init_task.c
===================================================================
```

```
--- lx26-20-rc2-mm1.orig/arch/sh64/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
+++ lx26-20-rc2-mm1/arch/sh64/kernel/init_task.c 2007-01-13 12:45:26.773011288 -0800
@@ -22,6 +22,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);

 struct pt_regs fake_swapper_regs;
Index: lx26-20-rc2-mm1/arch/sparc/kernel/init_task.c
===================================================================
--- lx26-20-rc2-mm1.orig/arch/sparc/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
+++ lx26-20-rc2-mm1/arch/sparc/kernel/init_task.c 2007-01-13 12:45:45.048233032 -0800
@@ -11,6 +11,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);
 struct task_struct init_task = INIT_TASK(init_task);

Index: lx26-20-rc2-mm1/arch/sparc64/kernel/init_task.c
===================================================================
--- lx26-20-rc2-mm1.orig/arch/sparc64/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
+++ lx26-20-rc2-mm1/arch/sparc64/kernel/init_task.c 2007-01-13 12:45:39.008151264 -0800
@@ -12,6 +12,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM(init_mm);

 EXPORT_SYMBOL(init_mm);
Index: lx26-20-rc2-mm1/arch/um/kernel/init_task.c
===================================================================
--- lx26-20-rc2-mm1.orig/arch/um/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
+++ lx26-20-rc2-mm1/arch/um/kernel/init_task.c 2007-01-13 12:45:55.279677616 -0800
@@ -19,6 +19,7 @@ struct mm_struct init_mm = INIT_MM(init_
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS(init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 EXPORT_SYMBOL(init_mm);

 /*
Index: lx26-20-rc2-mm1/arch/v850/kernel/init_task.c
===================================================================
```

```
--- lx26-20-rc2-mm1.orig/arch/v850/kernel/init_task.c 2006-11-29 13:57:37.000000000 -0800
+++ lx26-20-rc2-mm1/arch/v850/kernel/init_task.c 2007-01-13 12:46:03.355449912 -0800
@@ -24,6 +24,7 @@ static struct fs_struct init_fs = INIT_F
 static struct files_struct init_files = INIT_FILES;
 static struct signal_struct init_signals = INIT_SIGNALS (init_signals);
 static struct sighand_struct init_sighand = INIT_SIGHAND(init_sighand);
+static struct pid init_struct_pid = INIT_STRUCT_PID;
 struct mm_struct init_mm = INIT_MM (init_mm);

 EXPORT_SYMBOL(init_mm);
```

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