
Subject: [PATCH 5/13] BC: user interface (syscalls)

Posted by [dev](#) on Tue, 05 Sep 2006 15:21:07 GMT

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Add the following system calls for BC management:

1. sys_get_bcid - get current BC id
2. sys_set_bcid - change exec_ and fork_ BCs on current
3. sys_set_bclimit - set limits for resources consumptions
4. sys_get_bcstat - return br_resource_parm on resource

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```
arch/i386/kernel/syscall_table.S | 4 +
arch/ia64/kernel/entry.S         | 4 +
arch/sparc/kernel/entry.S        | 2
arch/sparc/kernel/systbls.S      | 6 +
arch/sparc64/kernel/entry.S      | 2
arch/sparc64/kernel/systbls.S    | 10 ++-
include/asm-i386/unistd.h        | 6 +
include/asm-ia64/unistd.h        | 6 +
include/asm-powerpc/systbl.h     | 4 +
include/asm-powerpc/unistd.h     | 6 +
include/asm-sparc/unistd.h       | 4 +
include/asm-sparc64/unistd.h     | 4 +
include/asm-x86_64/unistd.h      | 10 ++-
kernel/bc/Makefile               | 1
kernel/bc/sys.c                  | 120 +++++
kernel/sys_ni.c                  | 6 +
16 files changed, 186 insertions(+), 9 deletions(-)
```

--- ./arch/i386/kernel/syscall_table.S.bcsys 2006-09-05 11:47:31.000000000 +0400

+++ ./arch/i386/kernel/syscall_table.S 2006-09-05 12:47:21.000000000 +0400

@@ -318,3 +318,7 @@ ENTRY(sys_call_table)

.long sys_vmsplice

.long sys_move_pages

.long sys_getcpu

+ .long sys_get_bcid

+ .long sys_set_bcid /* 320 */

+ .long sys_set_bclimit

+ .long sys_get_bcstat

--- ./arch/ia64/kernel/entry.S.bcsys 2006-09-05 11:47:31.000000000 +0400

+++ ./arch/ia64/kernel/entry.S 2006-09-05 12:47:21.000000000 +0400

@@ -1610,5 +1610,9 @@ sys_call_table:

data8 sys_sync_file_range // 1300

data8 sys_tee

```

    data8 sys_vmsplice
+ data8 sys_get_bcid
+ data8 sys_set_bcid
+ data8 sys_set_bclimit // 1305
+ data8 sys_get_bcstat

.org sys_call_table + 8*NR_syscalls // guard against failures to increase NR_syscalls
--- ./arch/sparc/kernel/entry.S.bcsys 2006-07-10 12:39:10.000000000 +0400
+++ ./arch/sparc/kernel/entry.S 2006-09-05 12:47:21.000000000 +0400
@@ -37,7 +37,7 @@

#define curptr    g6

-#define NR_SYSCALLS 300    /* Each OS is different... */
+#define NR_SYSCALLS 304    /* Each OS is different... */

/* These are just handy. */
#define _SV save %sp, -STACKFRAME_SZ, %sp
--- ./arch/sparc/kernel/systbls.S.bcsys 2006-07-10 12:39:10.000000000 +0400
+++ ./arch/sparc/kernel/systbls.S 2006-09-05 12:47:21.000000000 +0400
@@ -78,7 +78,8 @@ sys_call_table:
/*285*/ .long sys_mkdirat, sys_mknodat, sys_fchownat, sys_futimesat, sys_fstatat64
/*290*/ .long sys_unlinkat, sys_renameat, sys_linkat, sys_symlinkat, sys_readlinkat
/*295*/ .long sys_fchmodat, sys_faccessat, sys_pselect6, sys_ppoll, sys_unshare
-/*300*/ .long sys_set_robust_list, sys_get_robust_list
+/*300*/ .long sys_set_robust_list, sys_get_robust_list, sys_get_bcid, sys_set_bcid,
sys_set_bclimit
+/*305*/ .long sys_get_bcstat

#ifdef CONFIG_SUNOS_EMUL
/* Now the SunOS syscall table. */
@@ -192,4 +193,7 @@ sunos_sys_table:
.long sunos_nosys, sunos_nosys, sunos_nosys
.long sunos_nosys, sunos_nosys, sunos_nosys

+ .long sunos_nosys, sunos_nosys, sunos_nosys,
+ .long sunos_nosys
+
#endif
--- ./arch/sparc64/kernel/entry.S.bcsys 2006-07-10 12:39:10.000000000 +0400
+++ ./arch/sparc64/kernel/entry.S 2006-09-05 12:47:21.000000000 +0400
@@ -25,7 +25,7 @@

#define curptr    g6

-#define NR_SYSCALLS 300    /* Each OS is different... */
+#define NR_SYSCALLS 304    /* Each OS is different... */

```

```

.text
.align 32
--- ./arch/sparc64/kernel/systbls.S.bcsys 2006-07-10 12:39:11.000000000 +0400
+++ ./arch/sparc64/kernel/systbls.S 2006-09-05 12:47:21.000000000 +0400
@@ -79,7 +79,8 @@ sys_call_table32:
    .word sys_mkdirat, sys_mknodat, sys_fchownat, compat_sys_futimesat, compat_sys_fstatat64
/*290*/ .word sys_unlinkat, sys_renameat, sys_linkat, sys_symlinkat, sys_readlinkat
    .word sys_fchmodat, sys_faccessat, compat_sys_pselect6, compat_sys_ppoll, sys_unshare
-/*300*/ .word compat_sys_set_robust_list, compat_sys_get_robust_list
+/*300*/ .word compat_sys_set_robust_list, compat_sys_get_robust_list, sys_nis_syscall,
sys_nis_syscall, sys_nis_syscall
+ .word sys_nis_syscall

#endif /* CONFIG_COMPAT */

@@ -149,7 +150,9 @@ sys_call_table:
    .word sys_mkdirat, sys_mknodat, sys_fchownat, sys_futimesat, sys_fstatat64
/*290*/ .word sys_unlinkat, sys_renameat, sys_linkat, sys_symlinkat, sys_readlinkat
    .word sys_fchmodat, sys_faccessat, sys_pselect6, sys_ppoll, sys_unshare
-/*300*/ .word sys_set_robust_list, sys_get_robust_list
+/*300*/ .word sys_set_robust_list, sys_get_robust_list, sys_get_bcid, sys_set_bcid,
sys_set_bclimit
+ .word sys_get_bcstat
+

#if defined(CONFIG_SUNOS_EMUL) || defined(CONFIG_SOLARIS_EMUL) || \
    defined(CONFIG_SOLARIS_EMUL_MODULE)
@@ -263,4 +266,7 @@ sunos_sys_table:
    .word sunos_nosys, sunos_nosys, sunos_nosys
    .word sunos_nosys, sunos_nosys, sunos_nosys
    .word sunos_nosys, sunos_nosys, sunos_nosys
+
+ .word sunos_nosys, sunos_nosys, sunos_nosys
+ .word sunos_nosys
#endif
--- ./include/asm-i386/unistd.h.bcsys 2006-09-05 11:47:33.000000000 +0400
+++ ./include/asm-i386/unistd.h 2006-09-05 12:48:37.000000000 +0400
@@ -324,8 +324,12 @@
#define __NR_vmsplice 316
#define __NR_move_pages 317
#define __NR_getcpu 318
+#define __NR_get_bcid 319
+#define __NR_set_bcid 320
+#define __NR_set_bclimit 321
+#define __NR_get_bcstat 322

-#define NR_syscalls 318
+#define NR_syscalls 323

```

```

#include <linux/err.h>

/*
--- ./include/asm-ia64/unistd.h.bcsys 2006-09-05 11:47:33.000000000 +0400
+++ ./include/asm-ia64/unistd.h 2006-09-05 12:47:21.000000000 +0400
@@ -291,11 +291,15 @@
#define __NR_sync_file_range 1300
#define __NR_tee 1301
#define __NR_vmsplice 1302
+#define __NR_get_bcid 1303
+#define __NR_set_bcid 1304
+#define __NR_set_bclimit 1305
+#define __NR_get_bcstat 1306

#ifdef __KERNEL__

-#define NR_syscalls 279 /* length of syscall table */
+#define NR_syscalls 283 /* length of syscall table */

#define __ARCH_WANT_SYS_RT_SIGACTION

--- ./include/asm-powerpc/systbl.h.bcsys 2006-07-10 12:39:19.000000000 +0400
+++ ./include/asm-powerpc/systbl.h 2006-09-05 12:47:21.000000000 +0400
@@ -304,3 +304,7 @@ SYSCALL_SPU(fchmodat)
SYSCALL_SPU(faccessat)
COMPAT_SYS_SPU(get_robust_list)
COMPAT_SYS_SPU(set_robust_list)
+SYSCALL(sys_get_bcid)
+SYSCALL(sys_set_bcid)
+SYSCALL(sys_set_bclimit)
+SYSCALL(sys_get_bcstat)
--- ./include/asm-powerpc/unistd.h.bcsys 2006-09-05 11:47:33.000000000 +0400
+++ ./include/asm-powerpc/unistd.h 2006-09-05 12:47:21.000000000 +0400
@@ -323,10 +323,14 @@
#define __NR_faccessat 298
#define __NR_get_robust_list 299
#define __NR_set_robust_list 300
+#define __NR_get_bcid 301
+#define __NR_set_bcid 302
+#define __NR_set_bclimit 303
+#define __NR_get_bcstat 304

#ifdef __KERNEL__

-#define __NR_syscalls 301
+#define __NR_syscalls 305

```

```

#define __NR_exit __NR_exit
#define NR_syscalls __NR_syscalls
--- ./include/asm-sparc/unistd.h.bcsys 2006-09-05 11:47:33.000000000 +0400
+++ ./include/asm-sparc/unistd.h 2006-09-05 12:47:21.000000000 +0400
@@ -318,6 +318,10 @@
#define __NR_unshare 299
#define __NR_set_robust_list 300
#define __NR_get_robust_list 301
+#define __NR_get_bcid 302
+#define __NR_set_bcid 303
+#define __NR_set_bclimit 304
+#define __NR_get_bcstat 305

#ifdef __KERNEL__
/* WARNING: You MAY NOT add syscall numbers larger than 301, since
--- ./include/asm-sparc64/unistd.h.bcsys 2006-09-05 11:47:33.000000000 +0400
+++ ./include/asm-sparc64/unistd.h 2006-09-05 12:47:21.000000000 +0400
@@ -320,6 +320,10 @@
#define __NR_unshare 299
#define __NR_set_robust_list 300
#define __NR_get_robust_list 301
+#define __NR_get_bcid 302
+#define __NR_set_bcid 303
+#define __NR_set_bclimit 304
+#define __NR_get_bcstat 305

#ifdef __KERNEL__
/* WARNING: You MAY NOT add syscall numbers larger than 301, since
--- ./include/asm-x86_64/unistd.h.bcsys 2006-09-05 11:47:33.000000000 +0400
+++ ./include/asm-x86_64/unistd.h 2006-09-05 12:49:03.000000000 +0400
@@ -619,8 +619,16 @@ __SYSCALL(__NR_sync_file_range, sys_sync
__SYSCALL(__NR_vmsplice, sys_vmsplice)
#define __NR_move_pages 279
__SYSCALL(__NR_move_pages, sys_move_pages)
+#define __NR_get_bcid 280
+__SYSCALL(__NR_get_bcid, sys_get_bcid)
+#define __NR_set_bcid 281
+__SYSCALL(__NR_set_bcid, sys_set_bcid)
+#define __NR_set_bclimit 282
+__SYSCALL(__NR_set_bclimit, sys_set_bclimit)
+#define __NR_get_bcstat 283
+__SYSCALL(__NR_get_bcstat, sys_get_bcstat)

-#define __NR_syscall_max __NR_move_pages
+#define __NR_syscall_max __NR_get_bcstat
#include <linux/err.h>

#endif __NO_STUBS

```

```

--- ./kernel/bc/Makefile.bcsys 2006-09-05 12:24:39.000000000 +0400
+++ ./kernel/bc/Makefile 2006-09-05 12:49:28.000000000 +0400
@@ -6,3 +6,4 @@

obj-y += beancounter.o
obj-y += misc.o
+obj-y += sys.o
--- /dev/null 2006-07-18 14:52:43.075228448 +0400
+++ ./kernel/bc/sys.c 2006-09-05 12:47:21.000000000 +0400
@@ -0,0 +1,120 @@
+/*
+ * kernel/bc/sys.c
+ *
+ * Copyright (C) 2006 OpenVZ. SWsoft Inc
+ *
+ */
+
+#include <linux/sched.h>
+#include <asm/uaccess.h>
+
+#include <bc/beancounter.h>
+#include <bc/task.h>
+
+asmlinkage long sys_get_bcid(void)
+{
+ struct beancounter *bc;
+
+ bc = get_exec_bc();
+ return bc->bc_id;
+}
+
+asmlinkage long sys_set_bcid(bcid_t id)
+{
+ int error;
+ struct beancounter *bc;
+ struct task_beancounter *task_bc;
+
+ task_bc = &current->task_bc;
+
+ /* You may only set an bc as root */
+ error = -EPERM;
+ if (!capable(CAP_SETUID))
+ goto out;
+
+ /* Ok - set up a beancounter entry for this user */
+ error = -ENOMEM;
+ bc = beancounter_findcreate(id, BC_ALLOC);
+ if (bc == NULL)

```

```

+ goto out;
+
+ /* install bc */
+ put_beancounter(task_bc->exec_bc);
+ task_bc->exec_bc = bc;
+ put_beancounter(task_bc->fork_bc);
+ task_bc->fork_bc = get_beancounter(bc);
+ error = 0;
+out:
+ return error;
+}
+
+asmlinkage long sys_set_bclimit(bcid_t id, unsigned long resource,
+ unsigned long __user *limits)
+{
+ int error;
+ unsigned long flags;
+ struct beancounter *bc;
+ unsigned long new_limits[2];
+
+ error = -EPERM;
+ if(!capable(CAP_SYS_RESOURCE))
+ goto out;
+
+ error = -EINVAL;
+ if (resource >= BC_RESOURCES)
+ goto out;
+
+ error = -EFAULT;
+ if (copy_from_user(&new_limits, limits, sizeof(new_limits)))
+ goto out;
+
+ error = -EINVAL;
+ if (new_limits[0] > BC_MAXVALUE || new_limits[1] > BC_MAXVALUE ||
+ new_limits[0] > new_limits[1])
+ goto out;
+
+ error = -ENOENT;
+ bc = beancounter_findcreate(id, BC_LOOKUP);
+ if (bc == NULL)
+ goto out;
+
+ spin_lock_irqsave(&bc->bc_lock, flags);
+ bc->bc_parms[resource].barrier = new_limits[0];
+ bc->bc_parms[resource].limit = new_limits[1];
+ spin_unlock_irqrestore(&bc->bc_lock, flags);
+
+ put_beancounter(bc);

```

```

+ error = 0;
+out:
+ return error;
+}
+
+int sys_get_bcstat(bcid_t id, unsigned long resource,
+ struct bc_resource_parm __user *uparm)
+{
+ int error;
+ unsigned long flags;
+ struct beancounter *bc;
+ struct bc_resource_parm parm;
+
+ error = -EINVAL;
+ if (resource >= BC_RESOURCES)
+ goto out;
+
+ error = -ENOENT;
+ bc = beancounter_findcreate(id, BC_LOOKUP);
+ if (bc == NULL)
+ goto out;
+
+ spin_lock_irqsave(&bc->bc_lock, flags);
+ parm = bc->bc_parms[resource];
+ spin_unlock_irqrestore(&bc->bc_lock, flags);
+ put_beancounter(bc);
+
+ error = 0;
+ if (copy_to_user(uparm, &parm, sizeof(parm)))
+ error = -EFAULT;
+
+out:
+ return error;
+}
--- ./kernel/sys_ni.c.bcsys 2006-09-05 11:47:33.000000000 +0400
+++ ./kernel/sys_ni.c 2006-09-05 12:49:16.000000000 +0400
@@ -139,3 +139,9 @@ cond_syscall(compat_sys_move_pages);
cond_syscall(sys_bdflush);
cond_syscall(sys_ioprio_set);
cond_syscall(sys_ioprio_get);
+
+/* user resources syscalls */
+cond_syscall(sys_set_bcid);
+cond_syscall(sys_get_bcid);
+cond_syscall(sys_set_bclimit);
+cond_syscall(sys_get_bcstat);

```
