

## [PATCH] Serial updates

**Source:** <http://linux.derkeiler.com/Mailing-Lists/Kernel/2004-10/10321.html>

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**From:** Russell King (*rmk+lkml\_at\_arm.linux.org.uk*)

**Date:** 10/31/04

Date: Sun, 31 Oct 2004 17:51:14 +0000

To: Linux Kernel List <linux-kernel@vger.kernel.org>

Ok, here's a major serial update. Items covered in this update:

– unuse register\_serial/unregister\_serial.

Instead, please use serial8250\_register\_port() and serial8250\_unregister\_port() to talk to the 8250 driver.

The old interfaces have several restrictions:

1. do not allow the struct device associated with a port to be known to the tty layer.
2. have various restrictions on the size of IO addresses (see the HIGH\_BITS\_OFFSET stuff – which incidentally 8250\_pnp got wrong.)

– provide a mechanism for 8250 platform ports to be dynamically registered. We do this via platform devices – either one or multiple platform devices. You can have none, one, or as many as you desire. 8250.c couldn't care.

– any ports listed in include/asm-\*/serial.h will still be initialised in preference to platform device based ports for the time being. It is intended that everyone will move to using the platform device method.

– this means that CONFIG\_SERIAL\_8250\_NR\_UARTS slightly changes definition. It is the number of \_extra\_ ports above those in include/asm-\*/serial.h that 8250.h will support. If you have removed all ports from include/asm-\*/serial.h, then it is obviously the total number of ports that 8250.c will support, and you need to make sure that it's large enough for your platform.

– ppc64 broke in this merge. That's expected because I backed out benh's changes to the serial drivers. A "get you working again" patch is with benh as of last night pending his attention.

The patch is about 50K, so won't fit through lkml, and is available here instead:

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<http://www.arm.linux.org.uk/~rmk/misc/linus-serial.diff>

People who should test this patch as a minimum:

- ia64 people (ACPI port discovery)
- parisc people (GSC port discovery)
- pnp using people

Once this lot is in, I'll be following up with a set of patches which removes the serial device tables in include/asm-arm/arch-\*/serial.h.

Diffstat and changeset log follow:

```
drivers/serial/8250.c | 371 ++++++++++++++++++++++++++++++++++++++-----
drivers/serial/8250.h | 74 ++++++++
drivers/serial/8250_acorn.c | 60 +++----
drivers/serial/8250_acpi.c | 74 +++-----
drivers/serial/8250_pci.c | 6
drivers/serial/8250_pnp.c | 34 +--
drivers/serial/au1x00_uart.c | 17 -
drivers/serial/serial_core.c | 83 +-----
drivers/serial/serial_cs.c | 28 +--
include/linux/8250.h | 75 -----
include/linux/serial_8250.h | 28 +++
include/linux/serial_core.h | 10 -
12 files changed, 420 insertions(+), 440 deletions(-)
```

through these ChangeSets:

<rmk@flint.arm.linux.org.uk> (04/10/31 1.2354)  
[SERIAL] Fix deadlock on removal of 8250 module.

We must unregister all serial ports before driver\_unregister() can complete. This means that we must unregister all ports in serial8250\_remove, including our legacy ISA ports. We flag this special cleanup operation by setting serial8250\_isa\_devs to NULL and not handling our own platform device any differently from any others.

<rmk@flint.arm.linux.org.uk> (04/10/31 1.2353)  
[SERIAL] Don't detect console availability using port->ops.

Use !iobase && !membase rather than !ops for console port availability.

<rmk@flint.arm.linux.org.uk> (04/10/31 1.2352)  
[SERIAL] 8250\_acpi: Convert to use serial8250\_{un,}register\_port.

<rmk@flint.arm.linux.org.uk> (04/10/31 1.2351)  
[SERIAL] Don't use UPF\_AUTOPROBE, fix two build problems.

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The curse of the missing `__devexit_p()` returns, and `asm-*/` obviously marks the end of the comment.

<rmk@flint.arm.linux.org.uk> (04/10/31 1.2350)

[SERIAL] 8250\_pnp: Convert to use `serial8250_{un,}register_port`.

<rmk@flint.arm.linux.org.uk> (04/10/31 1.2349)

[SERIAL] `serial_cs`: Convert to use `serial8250_{un,}register_port`.

<rmk@flint.arm.linux.org.uk> (04/10/31 1.2348)

[SERIAL] 8250: Warn when ports with zero `base_baud` are registered.

<rmk@flint.arm.linux.org.uk> (04/10/31 1.2347)

[SERIAL] 8250\_acorn: Convert to use `serial8250_{un,}register_port`.

<rmk@flint.arm.linux.org.uk> (04/10/30 1.2345)

[SERIAL] Undo "get\_legacy\_serial\_ports" patch for PPC.

This patch conflicts with work to properly integrate the device model into the serial layer, and provide architectures with a *\*clean\** way to tell 8250.c about their serial ports at run time.

<rmk@flint.arm.linux.org.uk> (04/10/30 1.2026.4.8)

[SERIAL] 8250: prevent ports with zero clocks being registered.

<rmk@flint.arm.linux.org.uk> (04/10/30 1.2026.4.7)

[SERIAL] 8250: add probe and remove device driver methods.

This change allows platform devices named "serial8250" to provide lists of serial ports to the 8250 driver at runtime, in addition to the hard coded table in `include/asm-*/serial.h`.

The next step is to deprecate the tables in `serial.h`.

<rmk@flint.arm.linux.org.uk> (04/10/30 1.2026.4.6)

[SERIAL] 8250: Add platform device for ISA 8250–compatible devices.

Add a platform device for ISA 8250–compatible serial devices listed in the table in `include/asm-*/serial.h`. Arrange for unregistered serial devices to be owned by this device.

This enables power management for ISA 8250 devices, and starts to opens the way for architectures to dynamically provide their own lists of 8250 devices via platform device(s).

<rmk@flint.arm.linux.org.uk> (04/10/30 1.2026.4.5)

[SERIAL] Re–order 8250 serial driver initialisation/finalisation.

Only register the 8250 serial driver with the device model after registering and setting up our internal uart ports. Do the reverse on module finalisation.

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<rmk@flint.arm.linux.org.uk> (04/10/30 1.2026.4.4)  
[SERIAL] 8250: move basic initialisation of 8250 ports.

This moves the basic initialisation of 8250 ports from  
serial8250\_register\_ports() into serial8250\_isa\_init\_ports()

<rmk@flint.arm.linux.org.uk> (04/10/30 1.2026.4.3)  
[SERIAL] 8250: Fix resource handling.

serial8250\_request\_std\_resource() is now responsible for claiming  
the standard resources, `__and__` calling `ioremap` if necessary.  
serial8250\_release\_std\_resource() performs the complementary function  
in its entirety.  
serial8250\_\*\_rsa\_resource() perform the similar operations for RSA  
ports, with the exception that RSA ports can only be mapped into IO  
space.

<rmk@flint.arm.linux.org.uk> (04/10/30 1.2026.4.2)  
[SERIAL] Clean up serial\_core.c write functions.

Since the tty layer now takes care of user space writes,  
`__uart_user_write()` and associated temporary buffer and temporary  
buffer semaphore have all become unnecessary. There's also little  
point in having `__uart_kern_write()` separate from `uart_write()`, so  
combine the two together.

Adrian Bunk kindly provided the patch to remove `__uart_user_write()`.  
The rest of the work is rmk's.

Signed-off-by: Adrian Bunk  
Signed-off-by: Russell King <rmk@arm.linux.org.uk>

<arjan@nl.rmk.(none)> (04/10/24 1.2026.4.1)  
[SERIAL] Remove dead code.

serial8250\_get\_irq\_map is no longer used anywhere in the kernel (it  
used to be used by the isapnp code but isn't anymore) so it's dead  
code, below is a patch to remove this.

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Russell King  
Linux kernel 2.6 ARM Linux - <http://www.arm.linux.org.uk/>  
maintainer of: 2.6 PCMCIA - <http://pcmcia.arm.linux.org.uk/>  
2.6 Serial core

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