

**NAME**

outb, outw, outl, outsb, outsw, outsl, inb, inw, inl, insb, insw, insl, outb\_p, outw\_p, outl\_p, inb\_p, inw\_p, inl\_p – port I/O

**DESCRIPTION**

This family of functions is used to do low-level port input and output. The out\* functions do port output, the in\* functions do port input; the b-suffix functions are byte-width and the w-suffix functions word-width; the \_p-suffix functions pause until the I/O completes.

They are primarily designed for internal kernel use, but can be used from user space.

You compile with **-O** or **-O2** or similar. The functions are defined as inline macros, and will not be substituted in without optimization enabled, causing unresolved references at link time.

You use **ioperm(2)** or alternatively **iopl(2)** to tell the kernel to allow the user space application to access the I/O ports in question. Failure to do this will cause the application to receive a segmentation fault.

**CONFORMING TO**

**outb()** and friends are hardware-specific. The *value* argument is passed first and the *port* argument is passed second, which is the opposite order from most DOS implementations.

**SEE ALSO**

**ioperm(2)**, **iopl(2)**

**COLOPHON**

This page is part of release 3.22 of the Linux *man-pages* project. A description of the project, and information about reporting bugs, can be found at <http://www.kernel.org/doc/man-pages/>.