

**NAME**

**copy**, **copyin**, **copyin\_nofault**, **copyout**, **copyout\_nofault**, **copystr**, **copyinstr** - heterogenous address space copy functions

**SYNOPSIS**

```
#include <sys/types.h>
```

```
#include <sys/system.h>
```

*int*

```
copyin(const void *uaddr, void *kaddr, size_t len);
```

*int*

```
copyin_nofault(const void *uaddr, void *kaddr, size_t len);
```

*int*

```
copyout(const void *kaddr, void *uaddr, size_t len);
```

*int*

```
copyout_nofault(const void *kaddr, void *uaddr, size_t len);
```

*int \_\_deprecated*

```
copystr(const void *kfaddr, void *kdaddr, size_t len, size_t *done);
```

*int*

```
copyinstr(const void *uaddr, void *kaddr, size_t len, size_t *done);
```

**DESCRIPTION**

The **copy** functions are designed to copy contiguous data from one address space to another.

**copystr()** is deprecated and should be replaced with **strncpy(9)**. It will be removed from FreeBSD 13.

The **copyin()** and **copyin\_nofault()** functions copy *len* bytes of data from the user-space address *uaddr* to the kernel-space address *kaddr*.

The **copyout()** and **copyout\_nofault()** functions copy *len* bytes of data from the kernel-space address *kaddr* to the user-space address *uaddr*.

The **copyin\_nofault()** and **copyout\_nofault()** functions require that the kernel-space and user-space data be accessible without incurring a page fault. The source and destination addresses must be physically mapped for read and write access, respectively, and neither the source nor destination addresses may be

pageable.

The **copystr()** function copies a NUL-terminated string, at most *len* bytes long, from kernel-space address *kfaddr* to kernel-space address *kdaddr*. The number of bytes actually copied, including the terminating NUL, is returned in *\*done* (if *done* is non-NULL).

The **copyinstr()** function copies a NUL-terminated string, at most *len* bytes long, from user-space address *uaddr* to kernel-space address *kaddr*. The number of bytes actually copied, including the terminating NUL, is returned in *\*done* (if *done* is non-NULL).

## RETURN VALUES

The **copy** functions return 0 on success. All but **copystr()** return EFAULT if a bad address is encountered. The **copyin\_nofault()** and **copyout\_nofault()** functions return EFAULT if a page fault occurs. The **copystr()** and **copyinstr()** functions return ENAMETOOLONG if the string is longer than *len* bytes.

## SEE ALSO

fetch(9), store(9)