NAME

mcpzsa – ALM-2 Zilog 8530 SCC serial communications driver

SYNOPSIS

#include <fcntl.h>
#include <sys/termios.h>
open("/dev/term/*n***",** *mode***);**
open("/dev/cua/*n***",** *mode***);**

DESCRIPTION

The ALM-2 board provides 16 serial input/output channels that are capable of supporting a variety of communication protocols. A typical system uses these devices to implement essential functions, including RS-423 ports (which also support most RS-232 equipment).

The **mcpzsa** module is a loadable STREAMS driver that provides basic support for the 8530 hardware, together with basic asynchronous communication support. The driver supports those **termio**(7I) device control functions specified by flags in the **c_cflag** word of the **termios** structure and by the **IGNBRK**, **IGNPAR**, **PARMRK**, or **INPCK** flags in the **c_iflag** word of the **termios** structure. All other **termio**(7I) functions must be performed by STREAMS modules pushed atop the driver. When a device is opened, the **ldterm**(7M) and **ttcompat**(7M) STREAMS modules are automatically pushed on top of the stream, providing the standard **termio**(7I) interface.

The character-special devices **/dev/term/[0-15]** are used to access the serial ports on the first ALM-2 board.

Subsequent instances of the ALM-2 board will use the next 16 numbers in sequence. These **term/***n* devices have minor device numbers in the range 0 – 127.

To allow a single tty line to be connected to a modem and used for both incoming and outgoing calls, a special feature, controlled by the minor device number, is available. By accessing character-special devices with names of the form **/dev/cua/***n*, it is possible to open a port without the Carrier Detect signal being asserted, either through hardware or an equivalent software mechanism. These devices are commonly known as **dial-out** lines and have minor numbers 256 greater than their corresponding dial-in lines.

Once a **/dev/cua/***n* line is opened, the corresponding term line cannot be opened until the **/dev/cua/***n* line is closed; a blocking open will wait until the **/dev/cua/***n* line is closed (which will drop Data Terminal Ready, after which Carrier Detect will usually drop as well) and carrier is detected again, and a non-blocking open will return an error. Also, if the **/dev/term/***n* line has been opened successfully (usually only when carrier is recognized by the modem) the corresponding **/dev/cua/***n* line can not be opened. This allows a modem to be attached to, for example, **/dev/term/0** and used for dial-in (by enabling the line for login in **/etc/inittab**) and also used for dial-out (by **tip**(1) or **uucp**(1C)) as **/dev/cua/0** when no one is logged in on the line.

IOCTLS

The standard set of **termio ioctl( )** calls are supported by **mcpzsa**.

If the **CRTSCTS** flag in the **c_cflag** is set, output will be generated only if CTS is high; if CTS is low, output will be frozen. If the **CRTSCTS** flag is clear, the state of CTS has no effect. Breaks can be generated by the **TCSBRK**, **TIOCSBRK**, and **TIOCCBRK ioctl( )** calls. The modem control lines **TIOCM_CAR**, **TIOCM_CTS**, **TIOCM_RTS**, and **TIOCM_DTR** are provided.

The input and output line speeds may be set to any of the speeds supported by **termio**. The speeds cannot be set independently; when the output speed is set, the input speed is set to the same speed.

ERRORS

An **open( )** will fail if:

ENODEV	The unit being opened does not exist.
EPROTO	An unsupported or non-serial protocol has been requested.
EBUSY	The dial-out device is being opened and the dial-in device is already open, or the dial-in device is being opened with a no-delay open and the dial-out device is already open.
EBUSY	The unit has been marked as exclusive-use by another process with a **TIOCEXCL ioctl( )** call.
EINTR	The open was interrupted by the delivery of a signal.

FILES

/dev/term/[0-127]	hardwired tty lines
/dev/cua/[0-127]	dial-out tty lines

SEE ALSO

tip(1), **uucp**(1C), **ldterm**(7M), **termio**(7I), **ttcompat**(7M), **zs**(7D)

DIAGNOSTICS

mcpzsa*n c* **: parity error ignored.**
A parity error was detected and disregarded due to the **IGNPAR** flag being set.

mcpzsa*n c* **: SCC silo overflow.**
The 8530 character input silo overflowed before it could be serviced.

mcpzsa*n c* **: input ring overflow.**
The driver's character input ring buffer overflowed before it could be serviced.

NOTES

The character-special device names may not always be aligned on multiples of 16 if other serial port devices, such as SPIF devices are present on the system.