The Peripheral Writer

Introduction

- The peripheral writer device driver consists of four data channels.
- The user can write to a channel and can read from a channel.
- The channel index (0-3) is used to indicate the current channel.
- Any read will read from the current channel.
- Any write will write to the current channel and increment the channel index.
- You can programmatically set and get the channel index.
- You can get peripheral information and store in a structure.

Device File

The device file for our driver is **/dev/perwr**.

Functions

int **open**(const char* deviceFile, O_RDWR);
- The device file for our driver is **/dev/perwr**.
- Returns a file descriptor.

int **write**(int fd, char* buffer, size_t len);
- Uses the file descriptor returned by **open**.
- Writes **len** bytes from **buffer**.
- **write** returns the actual number of bytes written.

int **read**(int fd, char* buffer, size_t len);
- Uses the file descriptor returned by **open**.
- Reads up to **len** bytes into the **buffer**.
- **read** returns the actual number of bytes read.

int **close**(int fd);
- Closes the file referred to by the file descriptor.
- Returns 0 on success, -1 on error.

int **ioctl**(int fd, int command, …);
- Issues a command to the driver referred to by the file descriptor.
- Return -1 on error.

Ioctls

PERIPHERAL_WRITER_GET_CHANNEL_INDEX
Gets the channel index and stores the value into an int.
ioctl(fd, PERIPHERAL_WRITER_GET_CHANNEL_INDEX, &perIndex);//perIndex is an int

PERIPHERAL_WRITER_SET_CHANNEL_INDEX
Sets the channel index passing the index as an int
ioctl(fd, PERIPHERAL_WRITER_GET_CHANNEL_INDEX, &perIndex); //perIndex is an int

PERIPHERAL_WRITER_GET_INFO
Gets peripheral information and stores into a structure of the form:
typedef struct peripheral_info {
    int num_channels;
    int size_channel;
} PERIPHERAL_INFO;
ioctl(fd, PERIPHERAL_WRITER_GET_INFO, &perInfo);//perInfo is of type PERIPHERAL_INFO