

## Programmer's Manual

### Header Description

#### **4.17) user/time.h**

- functions for getting and setting time

##### **Functions:**

##### **void get\_time(void)**

- Displays the system time

##### **void set\_time(int hours, int minutes, int seconds)**

- Changes the system time to a time imputed by the user with the given parameters

#### **4.17) user/date.h**

- functions for getting and setting date

##### **Functions:**

##### **int readDateReg(char sect)**

- File used for date related commands

##### **void get\_date(void)**

- Displays the system date

##### **void set\_date(int month, int day, int year)**

- Changes the system date to a date imputed by the user with the given parameters

#### **4.17) user/comhand.h**

- functions for main command handler

##### **Functions:**

##### **void comhand(void)**

- Handles all commands called by the user

#### **4.17) user/rtc\_util.h**

- functions for reading bytes and converting BCD

##### **Functions:**

##### **int bcd\_to\_binary(int bcd)**

- Converts BCD to Binary

##### **int read\_rtc\_register(int reg)**

- Reads a byte from the RTC register

### Function Description

#### **4.17.1.4) serial.c**

##### **static int serial\_devno(device dev)**

**Author:** Garret Butler

**int serial\_init(device dev)**

**Author:** Garret Butler

**int serial\_out(device dev, const char \*buffer, size\_t len)**

**Author:** Garret Butler

**int serial\_poll(device dev, char \*buffer, size\_t len)**

**Author:** Garret Butler, Connor Groizard

#### **4.17.1.4) comhand.c**

**void getval(char\* resource)**

**Author:** Rama Al-Omar, Malone Ingham, Connor Groizard

- Retrieves and displays values based on the provided resource ("date" or "time").
- Calls corresponding functions to display the requested information.
  - get\_date()
  - get\_time()
- The function will display the time in a hh:mm:ss format
- The function will display the date in a mm/dd/yyyy format

**int is\_number(const char\* str)**

**Author:** Connor Groizard

- Checks if a given string consists of numeric digits only.
- Iterates through each character in the string and validates if its a digit.

**void setval(char\* resource)**

**Author:** Malone Ingham, Connor Groizard

- Sets values based on the provided resource ("date" or "time").
  - set\_date()
  - set\_time()
- Reads user input, validates and processes it accordingly.
- The function will set the date in a mm/dd/yyyy format
- The function will set the time in a hh/mm/ss format

**void clear(device dev)**

**Author:** Rama Al-Omar

- Clears the terminal by blanking it

### **void version(void)**

**Author:** Rama Al-Omar

- Prints the version of the MPX, as well as a compilation date.

### **void help(void)**

**Author:** Rama Al-Omar

- Prints all available commands as well as a description for the user.

### **int shutdown(void)**

**Author:** Rama Al-Omar

- Shuts down the MPX after a YES or NO question to the user.

### **void writeNewLine(void)**

- Writes a new line to ensure consistent formatting.

### **void comhand(void)**

**Author:** Rama Al-Omar, Malone Ingham

- Takes in user input and evaluates what command it is, then executes the command by calling the relevant function. Also, prints the welcome message to the MPX in color.

## **4.17.1.4) time.c**

### **int readTimeReg(char sect)**

**Author:** Connor Groizard

- Reads and retrieves specific time information from the RTC(Real-Time-Clock) registers.

### **void get\_time(void)**

**Author:** Connor Groizard

- Gets the current time from the RTC(Real-Time-Clock) registers, then formats it as a string and is then written to the terminal.

### **void set\_time(int hours, int minutes, int seconds)**

**Author:** Connor Groizard

- Sets the time in the RTC(Real-Time-Clock) registers, based on the values for Hours, Minutes and Seconds.

#### **4.17.1.4) date.c**

##### **int read\_rtc\_register(int reg)**

**Author:** Connor Groizard, Malone Ingham

Reads a byte of data from a specific register in the RTC(Real-Time-Clock).

- outb() RTC register selected
- inb() RTC data port

##### **int bcd\_to\_binary(int bcd)**

**Author:** Connor Groizard, Malone Ingham

- Converts Binary-Coded Decimal(BCD) value into the corresponding Binary equivalent.

##### **int binary\_to\_bcd(int bcd)**

**Author:** Connor Groizard, Malone Ingham

- Converts Binary to BCD(Binary-Coded-Decimal). Responsible for correctly representing the years in the set date.

##### **int readDateReg(char sect)**

**Author:** Connor Groizard, Malone Ingham

- Reads and retrieves specific time information from the RTC(Real-Time-Clock) registers.

##### **void get\_date(void)**

**Author:**Malone Ingham, Connor Groizard

- Gets the current date from the RTC(Real-Time-Clock) registers, then formats it as a string and is then written to the terminal.

##### **void set\_date(int month, int day, int year)**

**Author:**Malone Ingham, Connor Groizard

Sets the time in the RTC(Real-Time-Clock) registers, based on the values for Month, Day and Year.

#### **4.17.1.4) rtc\_util.c**

##### **int read\_rtc\_register(int reg)**

**Author:** Connor Groizard, Malone Ingham

- Reads a byte of data from a specific register in the RTC(Real-Time-Clock).
  - outb() RTC register selected
  - inb() RTC data port

**int bcd\_to\_binary(int bcd)**

**Author:** Connor Groizard, Malone Ingham

- Converts Binary-Coded Decimal(BCD) value into the corresponding Binary equivalent.