C8E

0.1

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#include "Memory.h"
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#include "Display.h"
```

Functions

- void printUsage ()
- int main (int argc, char **argv)

2.1.1 Function Documentation

2.1.1.1 int main (int *argc,* char ** *argv*)

Definition at line 23 of file C8E.c.

2.1.1.2 void printUsage ( )

Definition at line 14 of file C8E.c.

2.2 src/CartridgeReader.c File Reference

```
#include "CartridgeReader.h"
#include <stdio.h>
```

Functions

- int readCartridge (const char *const filename, unsigned char *data)
  Provide a pointer to the cardridge data.

2.2.1 Function Documentation

2.2.1.1 int readCartridge (const char *const *filename*, unsigned char * *data*)

Provide a pointer to the cardridge data.

Parameters

in	*filename*	Point the file to load into memory
out	*data*	Buffer that eventually receive the cardridge data. It must be initialized and big enougth.

Returns

The number of bytes read if the file exists, -1 otherwise.

Definition at line 30 of file CartridgeReader.c.

2.3 src/CartridgeReader.h File Reference

Define all functions, variables and defines for cartridge management.

Functions

- int readCartridge (const char *const filename, unsigned char *data)
  Provide a pointer to the cardridge data.

2.3.1 Detailed Description

Define all functions, variables and defines for cartridge management.

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Definition in file CartridgeReader.h.

2.3.2 Function Documentation

2.3.2.1 int readCartridge (const char *const *filename,* unsigned char * *data*)

Provide a pointer to the cardridge data.

Parameters

in	*filename*	Point the file to load into memory
out	*data*	Buffer that eventually receive the cardridge data. It must be initialized and big enougth.

Returns

The number of bytes read if the file exists, -1 otherwise.

Definition at line 30 of file CartridgeReader.c.

2.4 src/CPU.c File Reference

```
#include "CPU.h"
#include "Logs.h"
#include "Display.h"
#include "Memory.h"
```

Functions

- int setupCPU ()
- void cleanupCPU ()
- void tick ()
- void handleOpCode ()

2.4.1 Detailed Description

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Maxime Gaudin

Definition in file CPU.c.

2.4.2 Function Documentation

2.4.2.1 void cleanupCPU ( )

Definition at line 71 of file CPU.c.

2.4.2.2 void handleOpCode ( )

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2.4.2.3 int setupCPU ( )

Definition at line 54 of file CPU.c.

2.4.2.4 void tick ( )

Definition at line 348 of file CPU.c.

2.5 src/CPU.h File Reference

Defines

- #define MAX_STACK_SIZE 0xF

  Define the maximum stack size, i.e. the maximum amount of subroutine calls.

Functions

- int setupCPU ()
- void cleanupCPU ()
- void tick ()

2.5.1 Detailed Description

Version

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Author

Maxime Gaudin

Definition in file CPU.h.

2.5.2 Define Documentation

2.5.2.1 #define MAX_STACK_SIZE 0xF

Define the maximum stack size, i.e. the maximum amount of subroutine calls.

Definition at line 31 of file CPU.h.

2.5.3 Function Documentation

2.5.3.1 void cleanupCPU ( )

Definition at line 71 of file CPU.c.

2.5.3.2 int setupCPU ( )

Definition at line 54 of file CPU.c.

2.5.3.3 void tick ( )

Definition at line 348 of file CPU.c.

2.6 src/Display.c File Reference

```
#include "Display.h"
#include <string.h>
#include <stdlib.h>
#include <GLUT/glut.h>
#include "Logs.h"
```

Defines

- #define SCREEN_WIDTH 64
- #define SCREEN_HEIGTH 32
- #define SCREEN_RATIO 10
- #define DISPLAY_IDLE_TIME 16

Functions

- void reshape (int width, int height)
- int setupDisplay (int argc, char **argv)

  Setup all display related memory buffer and glut framework.

- int cleanupDisplay ()
- void render ()
- int clearScreen ()

  Clear screen.

2.6.1 Define Documentation

2.6.1.1 #define DISPLAY_IDLE_TIME 16

Definition at line 43 of file Display.c.

2.6.1.2 #define SCREEN_HEIGTH 32

Definition at line 40 of file Display.c.

2.6.1.3 #define SCREEN_RATIO 10

Definition at line 41 of file Display.c.

2.6.1.4 #define SCREEN_WIDTH 64

Definition at line 39 of file Display.c.

2.6.2 Function Documentation

2.6.2.1 int cleanupDisplay ( )

Definition at line 65 of file Display.c.

2.6.2.2 int clearScreen ( )

Clear screen.

Returns

1 if any pixel has been erase, 0 Otherwise.

Definition at line 111 of file Display.c.

2.6.2.3 void render ( )

Definition at line 85 of file Display.c.

2.6.2.4 void reshape (int *width,* int *height*)

Definition at line 71 of file Display.c.

2.6.2.5 int setupDisplay (int *argc,* char ∗∗ *argv*)

Setup all display related memory buffer and glut framework.

Definition at line 50 of file Display.c.

2.7 src/Display.h File Reference

Define all functions, variables and defines for display management.

Functions

- int setupDisplay (int argc, char ∗∗argv)

  Setup all display related memory buffer and glut framework.

- int cleanupDisplay ()
- int drawSprite (unsigned char X, unsigned char Y, const char ∗const spriteData, unsigned char len)

  Display a [len] byte sprite contained into [spriteData] at ([X], [Y]). TECHNICAL DESCRIPTION TODO.

- void render ()
- int clearScreen ()

  Clear screen.

2.7.1 Detailed Description

Define all functions, variables and defines for display management.

Version

0.1

Date

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Author

Maxime Gaudin

Definition in file Display.h.

2.7.2 Function Documentation

2.7.2.1 int cleanupDisplay ( )

Definition at line 65 of file Display.c.

2.7.2.2 int clearScreen ( )

Clear screen.

Returns

1 if any pixel has been erase, 0 Otherwise.

Definition at line 111 of file Display.c.

2.7.2.3 int drawSprite (unsigned char *X*, unsigned char *Y*, const char *const *spriteData*, unsigned char *len*)

Display a [len] byte sprite contained into [spriteData] at ([X], [Y]). TECHNICAL DESCRIPTION TODO.

Returns

1 if any pixel has been erase, 0 Otherwise.

2.7.2.4 void render ( )

Definition at line 85 of file Display.c.

2.7.2.5 int setupDisplay (int *argc,* char ** *argv*)

Setup all display related memory buffer and glut framework.

Definition at line 50 of file Display.c.

2.8 src/Logs.c File Reference

```
#include "Logs.h"
```

Functions

- int setupLogs (int redirect, unsigned char debugLevel, char *const outputFilename)

  Setup output log file and debug level to values passed in paramaters. Moreover, a file descriptor is created and initialized. if [redirect], log are also written in stdou.

- int closeLogs ()

  Close output log file descriptor and flush file buffer.

- void addEntry (unsigned char level, const char *const message)

  Add new entry in output log file if [level] is below or equal to debug level.

2.8.1 Function Documentation

2.8.1.1 void addEntry (unsigned char *level,* const char *const *message*)

Add new entry in output log file if [level] is below or equal to debug level.

Definition at line 56 of file Logs.c.

2.8.1.2 int closeLogs ( )

Close output log file descriptor and flush file buffer.

Returns

0 if success, 0 otherwise.

Definition at line 50 of file Logs.c.

2.8.1.3 int setupLogs (int *redirect,* unsigned char *debugLevel,* char *const *outputFilename*)

Setup output log file and debug level to values passed in paramaters. Moreover, a file descriptor is created and initialized. if [redirect], log are also written in stdou.

Returns

0 if success, 0 otherwise.

Definition at line 36 of file Logs.c.

2.9 src/Logs.h File Reference

```
#include <stdio.h>
```

Defines

- #define DEFAULT_DEBUG_LEVEL 1

  Specifies teh default debug level : Warning.

- #define DEFAULT_OUTPUT_FILENAME "DEBUG_LOGS"

  Specifies the default output filename, i.e. the file where log will be written.

Enumerations

- enum DEBUG_LEVELS {
  ERROR = 0, WARNING = 1, DRAWING = 2, DISASSEMBLY = 3,
  LOW_LEVEL_OPERATION = 4 }

Functions

- int setupLogs (int redirect, unsigned char debugLevel, char *const outputFilename)

  Setup output log file and debug level to values passed in paramaters. Moreover, a file descriptor is created and initialized. if [redirect], log are also written in stdou.

- int closeLogs ()

  Close output log file descriptor and flush file buffer.

- void addEntry (unsigned char level, const char *const message)

  Add new entry in output log file if [level] is below or equal to debug level.

2.9.1 Define Documentation

2.9.1.1 #define DEFAULT_DEBUG_LEVEL 1

Specifies teh default debug level : Warning.

Definition at line 23 of file Logs.h.

2.9.1.2 #define DEFAULT_OUTPUT_FILENAME "DEBUG_LOGS"

Specifies the default output filename, i.e. the file where log will be written.

Definition at line 26 of file Logs.h.

2.9.2 Enumeration Type Documentation

2.9.2.1 enum DEBUG_LEVELS

Enumerator:

ERROR

WARNING

DRAWING

DISASSEMBLY

LOW_LEVEL_OPERATION

Definition at line 20 of file Logs.h.

2.9.3 Function Documentation

2.9.3.1 void addEntry (unsigned char *level,* const char *const *message*)

Add new entry in output log file if [level] is below or equal to debug level.

Definition at line 56 of file Logs.c.

2.9.3.2 int closeLogs ( )

Close output log file descriptor and flush file buffer.

Returns

0 if success, 0 otherwise.

Definition at line 50 of file Logs.c.

2.9.3.3 int setupLogs (int *redirect,* unsigned char *debugLevel,* char *const *outputFilename*)

Setup output log file and debug level to values passed in paramaters. Moreover, a file descriptor is created and initialized. if [redirect], log are also written in stdou.

Returns

0 if success, 0 otherwise.

Definition at line 36 of file Logs.c.

2.10 src/Memory.c File Reference

Define all functions, variables and defines for memory management.

```
#include "Memory.h"
#include "Logs.h"
#include <stdlib.h>
#include <string.h>
```

Functions

- int setupMemory ()
  Initialize memory to 0.
- void cleanupMemory ()
  Cleanup all memory.
- int write (unsigned short addr, unsigned char *const data, unsigned int len)
  write [len] bytes from [data] into memory at adress [addr]
- int read (short addr, unsigned short len, unsigned char *const buffer)
  Read [len] bytes of data from address [addr] to buffer.

2.10.1 Detailed Description

Define all functions, variables and defines for memory management.

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Definition in file Memory.c.

2.10.2 Function Documentation

2.10.2.1 void cleanupMemory ( )

Cleanup all memory.

Definition at line 39 of file Memory.c.

2.10.2.2 int read (short *addr,* unsigned short *len,* unsigned char ∗const *buffer*)

Read [len] bytes of data from address [addr] to buffer.

Parameters

in	*addr*	Address where read begins
in	*len*	Number of bytes read
out	*buffer*	Pointer to the data buffer

Returns

0 if success, 1 otherwise.

Definition at line 56 of file Memory.c.

2.10.2.3 int setupMemory ( )

Initialize memory to 0.

Returns

0 if success, 1 otherwise.

Definition at line 28 of file Memory.c.

2.10.2.4 int write (unsigned short *addr,* unsigned char ∗const *data,* unsigned int *len*)

write [len] bytes from [data] into memory at adress [addr]

Parameters

in	*addr*	Address where data will be written
in	*data*	Pointer to data buffer
in	*len*	Number of byte written

Returns

0 if success, 1 otherwise.

Definition at line 44 of file Memory.c.

2.11 src/Memory.h File Reference

Defines

- #define RESERVED_MEMORY_START 0x0

  Specifies where memory starts (0x0, what a surprise isn't it ??).

- #define RESERVED_MEMORY_STOP 0x200

  Specifies where the memory stops.

- #define DATA_SPACE_START 0x200

  Specifies the beginning of the data space.

- #define DATA_SPACE_STOP 0xFFF

  Specifies the end of the data space.

- #define MAX_REGISTERS 0xF

  Specifies the maximum number of registers..

Functions

- int setupMemory ()

  Initialize memory to 0.

- void cleanupMemory ()

  Cleanup all memory.

- int write (unsigned short addr, unsigned char *const data, unsigned int len)

  write [len] bytes from [data] into memory at adress [addr]

- int read (short addr, unsigned short len, unsigned char *const buffer)

  Read [len] bytes of data from address [addr] to buffer.

2.11.1 Define Documentation

2.11.1.1 #define DATA_SPACE_START 0x200

Specifies the beginning of the data space.

Definition at line 36 of file Memory.h.

2.11.1.2 #define DATA_SPACE_STOP 0xFFF

Specifies the end of the data space.

Definition at line 38 of file Memory.h.

2.11.1.3 #define MAX_REGISTERS 0xF

Specifies the maximum number of registers..

Definition at line 41 of file Memory.h.

2.11.1.4 #define RESERVED_MEMORY_START 0x0

Specifies where memory starts (0x0, what a surprise isn't it ??).

Definition at line 31 of file Memory.h.

2.11.1.5 #define RESERVED_MEMORY_STOP 0x200

Specifies where the memory stops.

Definition at line 33 of file Memory.h.

2.11.2 Function Documentation

2.11.2.1 void cleanupMemory ( )

Cleanup all memory.

Definition at line 39 of file Memory.c.

2.11.2.2 int read (short *addr,* unsigned short *len,* unsigned char *const *buffer*)

Read [len] bytes of data from address [addr] to buffer.

Parameters

in	*addr*	Address where read begins
in	*len*	Number of bytes read
out	*buffer*	Pointer to the data buffer

Returns

0 if success, 1 otherwise.

Definition at line 56 of file Memory.c.

2.11.2.3 int setupMemory ( )

Initialize memory to 0.

Returns

0 if success, 1 otherwise.

Definition at line 28 of file Memory.c.

2.11.2.4 int write (unsigned short *addr,* unsigned char ∗const *data,* unsigned int *len*)

write [len] bytes from [data] into memory at adress [addr]

Parameters

in	*addr*	Address where data will be written
in	*data*	Pointer to data buffer
in	*len*	Number of byte written

Returns

0 if success, 1 otherwise.

Definition at line 44 of file Memory.c.

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