California State Univerbxty, Sacramento
College of Engineering and Computer Science

Computer Science 35: Introduction to Computer Architecture

CSC35.o Library 1.23 – x64 – Guide

How to Use

This library, but itself, is not a complete program. It must be linked into the object file that you will create during lab. For example, if you created the object file "lab.o", the following command will create a program called "a.out".

```
ld -o a.out csc35.o lab.o
```

Miscellaneous Subroutines

Subroutine	Input	Output	Notes
StopProgram	*none*	*none*	Terminates your program. You must call this subroutine at the end of your program.
RegistersPrint	*none*	*none*	Prints the contents of the register file to the screen.
About	*none*	*none*	Prints information about this library.

String Subroutines

Subroutine	Input	Output	Notes
StrPrint	**rbx**	*none*	Prints a null-terminated string located at the address stored in **rbx**.
StrScan	**rbx**, **rcx**	*none*	Scans a null-terminated string and stores it into the address stored in **rbx**. The register **rdi** must contain the maximum number of characters that can be stored (size of the buffer).
StrLength	**rbx**	**rbx**	Returns the length of a null-terminated string stored at address **rbx**. The result is returned in **rbx**.
CharPrint	**bl**	*none*	Prints the ASCII character stored in **bl**.
CharScan	*none*	**bl**	Scans an ASCII character from the keyboard and stores the result in **bl**.

Integer Subroutines

Subroutine	Input	Output	Notes
`IntPrint`	`rbx`	*none*	Prints a signed integer stored in `rbx` in decimal
`IntScan`	*none*	`rbx`	Scans a signed integer (in decimal) and stores it in `rbx`.
`HexPrint`	`rbx`	*none*	Prints the integer, stored in `rbx`, to the screen in hex.
`HexBytePrint`	`bl`	*none*	Prints the byte, stored in `bl`, to the screen in hex.
`GetRandom`	`rbx`	`rbx`	Returns a random integer from `0` to `(rbx - 1)` into `rbx`.

VT100 Subroutines

When you connect to another computer, often the Telnet software emulates a VT100 terminal screen.

Subroutine	Input	Output	Notes
`ClearScreen`	*none*	*none*	Clears the screen and moves the cursor to the top-left corner.
`MoveCursor`	`rbx`, `rcx`	*none*	Moves the cursor to column `rbx` and row `rdi`. Indexing starts at 1 in the top-left corner.
`ChangeTextColor`	`rbx`	*none*	Sets the text to the color specified in `rbx`. Please see the table below.
`ChangeBackColor`	`rbx`	*none*	Sets the background to the color specified in `rbx`. Please see the table below.

VT100 Color Codes

Code	Color
`0`	Black
`1`	Red
`2`	Green
`3`	Yellow

Code	Color
`4`	Blue
`5`	Magenta
`6`	Cyan
`7`	White