CPSC 240: Computer Organization and Assembly Language
Assignment 01, Fall Semester 2024

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1. Download the “CPSC-240 Assignment01.docx” document.
2. Follow the “CPSC-240 Ex01 Hello World.pdf” slide to design a “hello.asm” Assembly program and generate. “hello.o”, “hello.lst”, and “hello” files.
3. Copy and paste the “hello.asm” source code into the document.
4. Follow the “CPSC-240 Ex01 Debugger.pdf” slide to debug the “hello” file.
5. When the program runs to line 15, copy and paste the "Register" window into the document.
6. When the program runs to line 21, copy and paste the "Register" window into the document.
7. When running the "x/14db &text" and "x/s &text" commands, copy and paste the "GDB" window (including the gdb panel) into the document to display the memory results.
8. Save the file in pdf format and submit the pdf file to Canvas before deadline.

```
[; hello.asm
; char text[] = "Hello, World!\n"
; cout << text;

section .data
LF                      equ     10
NULL                    equ     0
SYS_exit                equ     60
EXIT_SUCCESS            equ     0
text                    db      "Hello, World!", LF, NULL

section .text
        global _start
_start:
  mov rax, 1
  mov rdi, 1
  mov rsi, text
  mov rdx, 14
  syscall

  mov rax, SYS_exit
  mov     rdi, EXIT_SUCCESS
  syscall]
```

DDD: Registers

Registers

rax	0x1	1
rbx	0x0	0
rcx	0x0	0
rdx	0xe	14
rsi	0x402000	4202496
rdi	0x1	1
rbp	0x0	0x0
rsp	0x7fffffffe360	0x7fffffffe360
r8	0x0	0
r9	0x0	0
r10	0x0	0
r11	0x0	0
r12	0x0	0
r13	0x0	0
r14	0x0	0
r15	0x0	0
rip	0x40101c	0x40101c <_start+28>
eflags	0x202	[IF]
cs	0x33	51
ss	0x2b	43
ds	0x0	0
es	0x0	0

Integer registers All registers

Close Help

[ ]

DDD: Registers

Registers

rax	0x3c	60
rbx	0x0	0
rcx	0x40101e	4198430
rdx	0xe	14
rsi	0x402000	4202496
rdi	0x0	0
rbp	0x0	0x0
rsp	0x7fffffffe360	0x7fffffffe360
r8	0x0	0
r9	0x0	0
r10	0x0	0
r11	0x302	770
r12	0x0	0
r13	0x0	0
r14	0x0	0
r15	0x0	0
rip	0x40102c	0x40102c <_start+44>
eflags	0x202	[IF]
cs	0x33	51
ss	0x2b	43
ds	0x0	0
es	0x0	0

Integer registers All registers

Close Help

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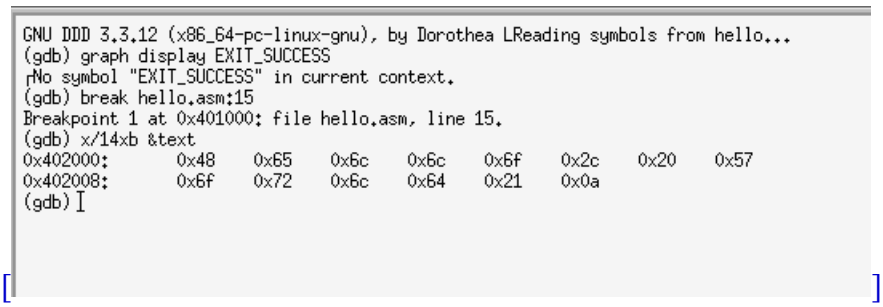
GNU DDD 3.3.12 (x86_64-pc-linux-gnu), by Dorothea LReading symbols from hello...
(gdb) graph display EXIT_SUCCESS
No symbol "EXIT_SUCCESS" in current context.
(gdb) break hello.asm:15
Breakpoint 1 at 0x401000: file hello.asm, line 15.
(gdb) x/14xb &text
0x402000:	0x48	0x65	0x6c	0x6c	0x6f	0x2c	0x20	0x57
0x402008:	0x6f	0x72	0x6c	0x64	0x21	0x0a
(gdb)