



Practical Report - 6 IE1024 - Computer Organization and Architecture

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Task-01

```
Start Page X MIFM64 SWC X Application Builder X task_1.s X task_1.o X
Asm Source History |  |        
1 .data
2 .global __do_copy_data
3
4 source_str: .byte 'H', 'e', 'l', 'l', 'o', 0x00
5 dest_str: .byte 'W', 'o', 'r', 'l', 'd', 0x00
6
7 .text
8 .global main
9
10 main:
11     ldi ZH, hi8(source_str)
12     ldi ZL, lo8(source_str)
13
14     ldi YH, hi8(dest_str)
15     ldi YL, lo8(dest_str)
16
17 copy_loop:
18     ld r16, Z+
19     cp r16, 0x00
20     breq done
21
22     st Y+, r16
23     rjmp copy_loop
24
25 done:
26     rjmp .
27
```

SRAM Data Memory					
Address	Symbol	Hex	Decimal	Binary	Char
SRAM Memory					
4000	source_str	0x48 72	01001000	01100101	'H'
4001		0x65 101	01100101	01100101	'e'
4002		0x6C 108	01101100	01101100	'l'
4003		0x6C 108	01101100	01101100	'l'
4004		0x6F 111	01101111	01101111	'o'
4005		0x00 0	00000000	00000000	'.'
4006	dest_str	0x48 72	01001000	01100101	'H'
4007		0x65 101	01100101	01100101	'e'
4008		0x6C 108	01101100	01101100	'l'
4009		0x6C 108	01101100	01101100	'l'
400A		0x6F 111	01101111	01101111	'o'
400B		0x00 0	00000000	00000000	'.'

Task-02

```
1 .data
2 number: .byte 7 ; Example number (can be modified)
3
4 .text
5 .global main
6
7 main:
8     ldi ZH, hi8(number) ; Load high byte of number address into ZH
9     ldi ZL, lo8(number) ; Load low byte of number address into ZL
0
1     ld r16, Z           ; Load the number into r16
2
3     andi r16, 1          ; Mask the least significant bit (check even or odd)
4     breq is_even         ; If the zero flag is set, number is even
5
6     ; Odd number case: Multiply by 2
7     lsl r16              ; Logical shift left (multiply by 2)
8     rjmp store_result    ; Jump to store the result
9
0 is_even:
1     ; Even number case: Divide by 2
2     lsr r16              ; Logical shift right (divide by 2)
3
4 store_result:
5     st Z, r16            ; Store the result back to memory
6
7     nop                  ; No operation (end of program)
```

Variables		Notifications		SRAM Data Memory								Program Memory				Output		Call Stack		Breakpoints							
		Address		00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	ASCII							
		4000		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00					SRAM Memory		
		4010		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00						
		4020		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00						
		4030		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00						
		4040		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00						
		4050		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00						
		4060		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00						
		4070		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00						
		4080		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00						