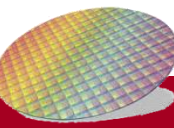




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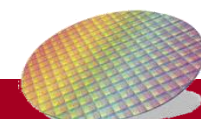
Mars 安裝教學





安裝Java

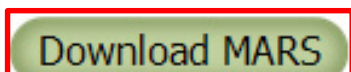
- 安裝Mars前要先安裝Java
- 1. 進入以下網址
- https://java.com/zh_TW/
- 2. 點“免費Java下載”
- 3. 點“同意並開始免費下載”
- 4. 打開下載的安裝檔安裝Java





安裝Mars

- 1. 進入以下網址
- <http://courses.missouristate.edu/kenvollmar/mars/download.htm>
- 2. 點選左上方 ” Download Mars“ 按鈕

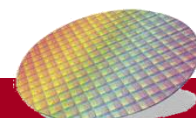


Download MARS

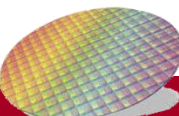
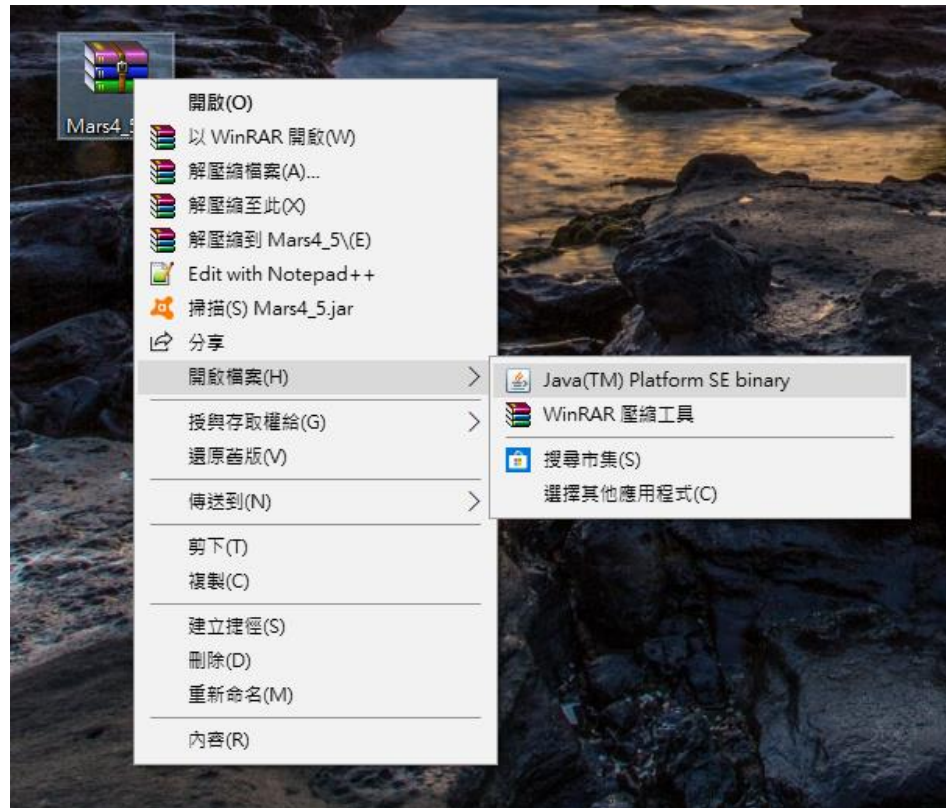
V4.5, Aug. 2014 (jar archive including Java source code)

Note: Is your MARS text unreadably small? Download and use a new release Java 9, which contains a fix to automatically scale and size AWT and Swing components for High Dots Per Inch (HiDPI) displays on Windows and Linux. Technical details.

- 會下載一個”Mars4_5.jar”檔案



3. 不要解壓縮，按右鍵選”開啟檔案”，用Java開





MARS 4.5

File Edit Run Settings Tools Help

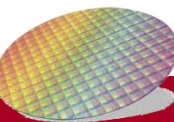
Run speed at max (no interaction)

Edit Execute

Registers		Coproc 1	Coproc 0
Name	Number	Value	
\$zero	0	0x00000000	
\$at	1	0x00000000	
\$v0	2	0x00000000	
\$v1	3	0x00000000	
\$a0	4	0x00000000	
\$a1	5	0x00000000	
\$a2	6	0x00000000	
\$a3	7	0x00000000	
\$t0	8	0x00000000	
\$t1	9	0x00000000	
\$t2	10	0x00000000	
\$t3	11	0x00000000	
\$t4	12	0x00000000	
\$t5	13	0x00000000	
\$t6	14	0x00000000	
\$t7	15	0x00000000	
\$s0	16	0x00000000	
\$s1	17	0x00000000	
\$s2	18	0x00000000	
\$s3	19	0x00000000	
\$s4	20	0x00000000	
\$s5	21	0x00000000	
\$s6	22	0x00000000	
\$s7	23	0x00000000	
\$t8	24	0x00000000	
\$t9	25	0x00000000	
\$k0	26	0x00000000	
\$k1	27	0x00000000	
\$gp	28	0x10008000	
\$sp	29	0x7fffffc	
\$fp	30	0x00000000	
\$ra	31	0x00000000	
pc		0x00400000	
hi		0x00000000	
lo		0x00000000	

Mars Messages Run I/O

Clear

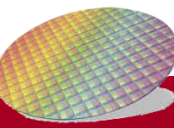




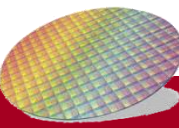
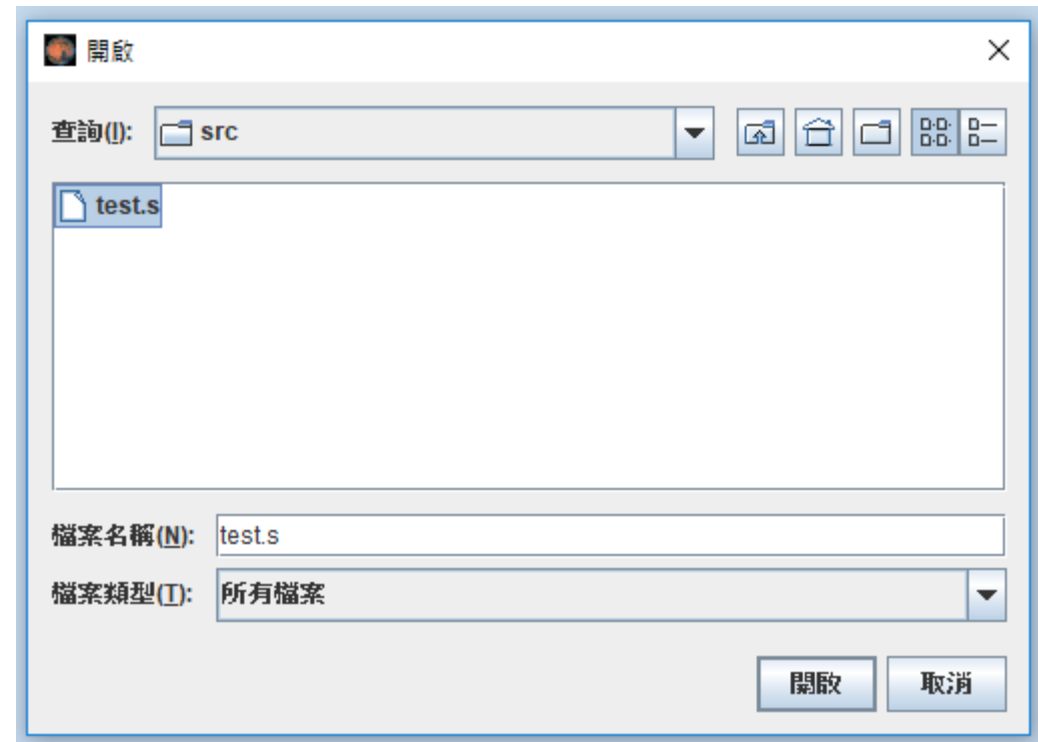
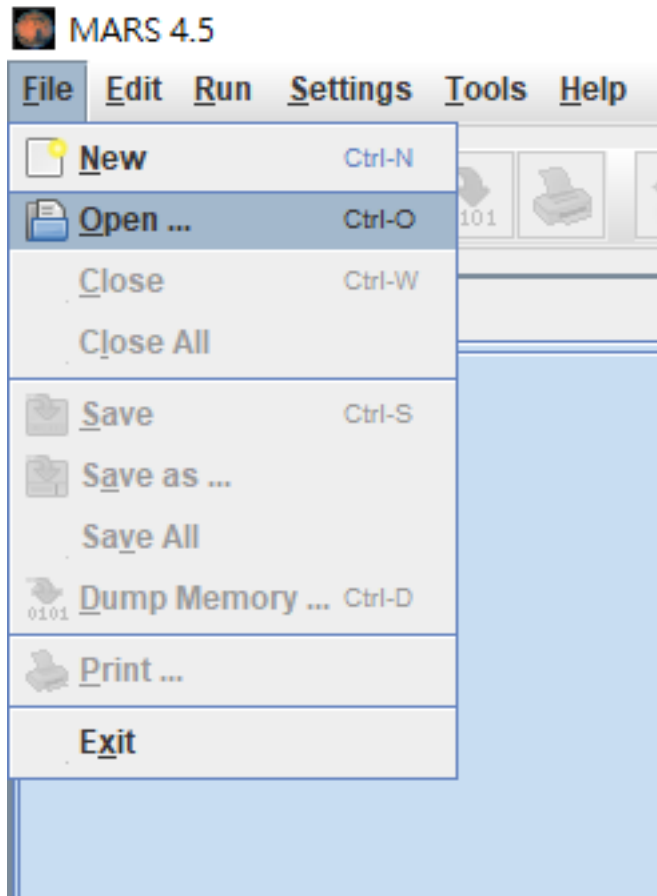
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Mars使用教學



點下File -> Open，來打開.s檔





載入後程式畫面

按此鈕編譯程式

C:\Users\daniel\Desktop\src\test.s - MARS 4.5

File Edit Run Settings Tools Help

Run speed at max (no interaction)

Registers Coproc 1 Coproc 0

Name	Number	Value
\$zero	0	0x00000000
\$at	1	0x00000000
\$v0	2	0x00000000
\$v1	3	0x00000000
\$a0	4	0x00000000
\$a1	5	0x00000000
\$a2	6	0x00000000
\$a3	7	0x00000000
\$t0	8	0x00000000
\$t1	9	0x00000000
\$t2	10	0x00000000
\$t3	11	0x00000000
\$t4	12	0x00000000
\$t5	13	0x00000000
\$t6	14	0x00000000
\$t7	15	0x00000000
\$s0	16	0x00000000
\$s1	17	0x00000000
\$s2	18	0x00000000
\$s3	19	0x00000000
\$s4	20	0x00000000
\$s5	21	0x00000000
\$s6	22	0x00000000
\$s7	23	0x00000000
\$s8	24	0x00000000
\$s9	25	0x00000000
\$k0	26	0x00000000
\$k1	27	0x00000000
\$gp	28	0x10008000
\$sp	29	0x7fffffc0
\$fp	30	0x00000000
\$ra	31	0x00000000
pc		0x00400000
hi		0x00000000
lo		0x00000000

```
1  test.s
2  main:
3      addi $t0, $zero, 4097      # $t0 = 0x00001001
4      sll $t0, $t0, 16          # set the base address of your array into $t0 = 0x10010000
5      add $t1, $zero, $zero
6      add $t2, $zero, $zero
7      addi $t3, $zero, 10
8
9  condition:
10     beq $t2, $t3, finish
11
12  loop:
13     addi $t2, $t2, 1
14     add $t1, $t1, $t2
15     j condition
16
17  finish:
18     sw $t1, 4($t0)
19     li $v0, 10                # program stop
20
```

Line: 1 Column: 1 ☒ Show Line Numbers

Mars Messages Run I/O

Clear



編譯成功畫面

Text Segment

Bkpt	Address	Code	Basic	Source
	0x00400000	0x20081001	addi \$8,\$0,0x00001001	3: addi \$t0, \$zero, 4097 # \$t0 = 0x00001001
	0x00400004	0x00084400	sll \$8,\$8,0x00000010	4: sll \$t0, \$t0, 16 # set the base address of your array into \$t0 = 0x10010000
	0x00400008	0x00004820	add \$9,\$0,\$0	5: add \$t1, \$zero, \$zero
	0x0040000c	0x00005020	add \$10,\$0,\$0	6: add \$t2, \$zero, \$zero
	0x00400010	0x200b000a	addi \$11,\$0,0x0000000a	7: addi \$t3, \$zero, 10
	0x00400014	0x114b0003	beq \$10,\$11,0x00000003	10: beq \$t2, \$t3, finish
	0x00400018	0x214a0001	addi \$10,\$10,0x00000001	14: addi \$t2, \$t2, 1
	0x0040001c	0x012a4820	add \$9,\$9,\$10	15: add \$t1, \$t1, \$t2
	0x00400020	0x08100005	j 0x00400014	16: j condition
	0x00400024	0xad090004	sw \$9,0x00000004(\$8)	18: sw \$t1, 4(\$t0)
	0x00400028	0x2402000a	addiu \$2,\$0,0x0000000a	19: li \$v0, 10 # program stop

原始碼

Data Segment

Address	Value (+0)	Value (+4)	Value (+8)	Value (+c)	Value (+10)	Value (+14)	Value (+18)	Value (+1c)
0x10010000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x10010020	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x10010040	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x10010060	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x10010080	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x100100a0	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x100100c0	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x100100e0	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x10010100	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x10010120	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x10010140	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x10010160	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x10010180	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x100101a0	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x100101c0	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000
0x100101e0	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000	0x00000000

Mars Messages

Run I/O

Assemble: assembling C:\Users\daniel\Desktop\00_2018CoVHW1_MIPS\Solution\Src\Insertion_sort.s

Assemble: operation completed successfully.

Assemble: assembling C:\Users\daniel\Desktop\src\test.s



Assemble: operation completed successfully.

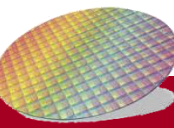
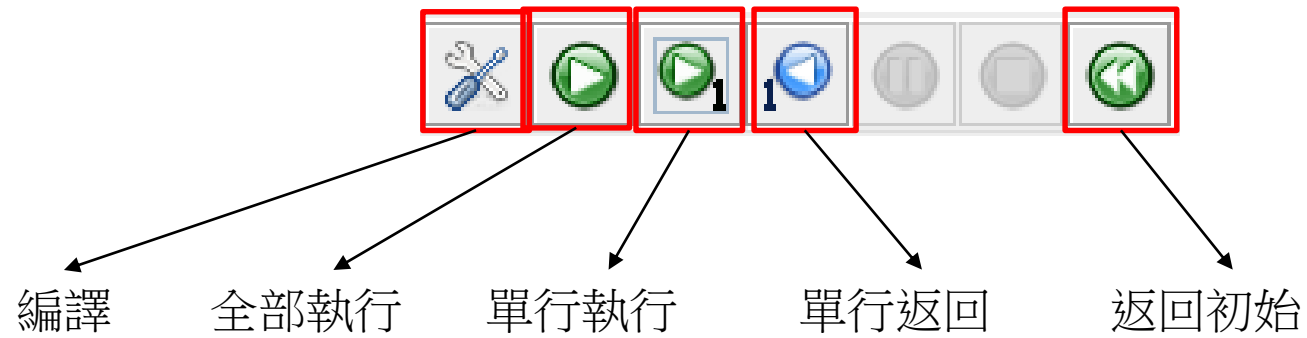
Clear

編譯成功

Computer Architecture and IC Design Lab

常用功能

按  來編譯組語，點選  執行





觀看執行結果

範例(test.s)：從1累加到10，結果存在t1，將結果存入memory，address=0x10010004

Data Segment			
Address	Value (+0)	Value (+4)	Value (+8)
0x10010000	0x00000000	0x00000037	0x00000000
0x10010020	0x00000000	0x00000000	0x00000000
0x10010040	0x00000000	0x00000000	0x00000000
0x10010060	0x00000000	0x00000000	0x00000000
0x10010080	0x00000000	0x00000000	0x00000000
0x100100a0	0x00000000	0x00000000	0x00000000
0x100100c0	0x00000000	0x00000000	0x00000000
0x100100e0	0x00000000	0x00000000	0x00000000
0x10010100	0x00000000	0x00000000	0x00000000
0x10010120	0x00000000	0x00000000	0x00000000
0x10010140	0x00000000	0x00000000	0x00000000
0x10010160	0x00000000	0x00000000	0x00000000
0x10010180	0x00000000	0x00000000	0x00000000
0x100101a0	0x00000000	0x00000000	0x00000000
0x100101c0	0x00000000	0x00000000	0x00000000
0x100101e0	0x00000000	0x00000000	0x00000000

Registers	Coproc 1	Coproc 0	
Name	Number	Value	
\$zero	0	0x00000000	
\$at	1	0x00000000	
\$v0	2	0x0000000a	
\$v1	3	0x00000000	
\$a0	4	0x00000000	
\$a1	5	0x00000000	
\$a2	6	0x00000000	
\$a3	7	0x00000000	
\$t0	8	0x10010000	
\$t1	9	0x00000037	
\$t2	10	0x0000000a	
\$t3	11	0x0000000a	
\$t4	12	0x00000000	
\$t5	13	0x00000000	
\$t6	14	0x00000000	
\$t7	15	0x00000000	
\$s0	16	0x00000000	
\$s1	17	0x00000000	
\$s2	18	0x00000000	
\$s3	19	0x00000000	
\$s4	20	0x00000000	
\$s5	21	0x00000000	
\$s6	22	0x00000000	
\$s7	23	0x00000000	
\$t8	24	0x00000000	
\$t9	25	0x00000000	
\$k0	26	0x00000000	
\$k1	27	0x00000000	
\$gp	28	0x10008000	
\$sp	29	0x7ffefffc	
\$fp	30	0x00000000	
\$ra	31	0x00000000	
pc		0x0040002c	
hi		0x00000000	
lo		0x00000000	

