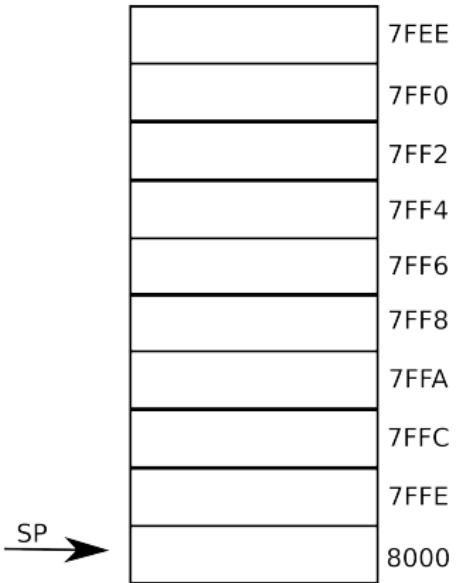


Practica 1 - Subrutinas

19 de febrero de 2014

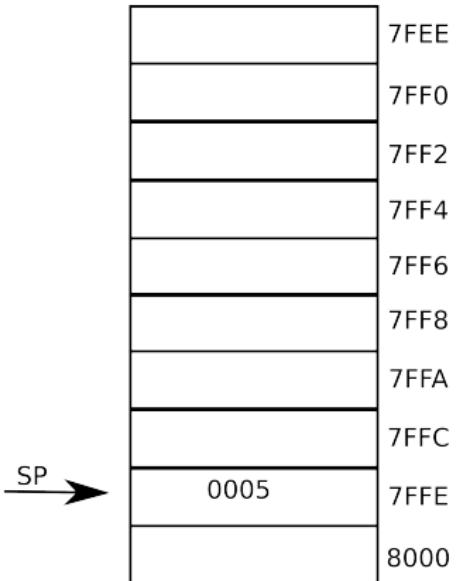
Subrutinas

ORG	3000H	:	Subrutina MUL	ORG	2000H	:	Programa Principal
MUL:	PUSH	BX		MOV	AX, NUM1		
	MOV	BX, SP		PUSH	AX		
	PUSH	CX		MOV	AX, NUM2		
	PUSH	AX		PUSH	AX		
	PUSH	DX		MOV	AX, OFFSET RES		
	ADD	BX, 6		PUSH	AX		
	MOV	CX, [BX]		MOV	DX, 0		
	MOV	BX, [BX]		CALL	MUL		
	ADD	BX, 2		POP	AX		
	MOV	AX, [BX]		POP	AX		
SUMA:	ADD	DX, AX		POP	AX		
	DEC	CX		HLT			
	JNZ	SUMA		END			
	SUB	BX, 4					
	MOV	AX, [BX]					
	MOV	BX, AX					
	MOV	[BX], DX					
	POP	DX					
	POP	AX					
	POP	CX					
	POP	BX					
	RET						



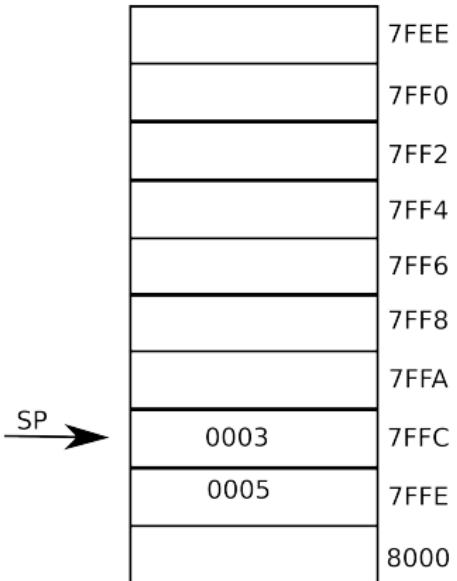
Subrutinas

ORG	3000H	:	Subrutina MUL	ORG	2000H	:	Programa Principal
MUL:	PUSH	BX		MOV	AX,	NUM1	
	MOV	BX,	SP	PUSH	AX		
	PUSH	CX		MOV	AX,	NUM2	
	PUSH	AX		PUSH	AX		
	PUSH	DX		MOV	AX,	OFFSET RES	
	ADD	BX,	6	PUSH	AX		
	MOV	CX,	[BX]	MOV	DX,	0	
	MOV	BX,	[BX]	CALL	MUL		
	ADD	BX,	2	POP	AX		
	MOV	AX,	[BX]	POP	AX		
SUMA:	ADD	DX,	AX	POP	AX		
	DEC	CX		HLT			
	JNZ	SUMA		END			
	SUB	BX,	4				
	MOV	AX,	[BX]				
	MOV	BX,	AX				
	MOV	[BX],	DX				
	POP	DX					
	POP	AX					
	POP	CX					
	POP	BX					
	RET						



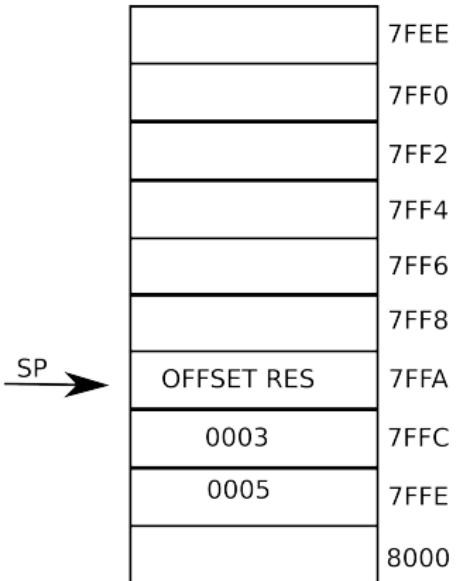
Subrutinas

ORG	3000H	:	Subrutina MUL	ORG	2000H	:	Programa Principal
MUL:	PUSH	BX		MOV	AX,	NUM1	
	MOV	BX,	SP	PUSH	AX		
	PUSH	CX		MOV	AX,	NUM2	
	PUSH	AX		PUSH	AX		
	PUSH	DX		MOV	AX,	OFFSET RES	
	ADD	BX,	6	PUSH	AX		
	MOV	CX,	[BX]	MOV	DX,	0	
	MOV	BX,	[BX]	CALL	MUL		
	ADD	BX,	2	POP	AX		
	MOV	AX,	[BX]	POP	AX		
SUMA:	ADD	DX,	AX	POP	AX		
	DEC	CX		POP	AX		
	JNZ	SUMA		HLT			
	SUB	BX,	4	END			
	MOV	AX,	[BX]				
	MOV	BX,	AX				
	MOV	[BX],	DX				
	POP	DX					
	POP	AX					
	POP	CX					
	POP	BX					
	RET						



Subrutinas

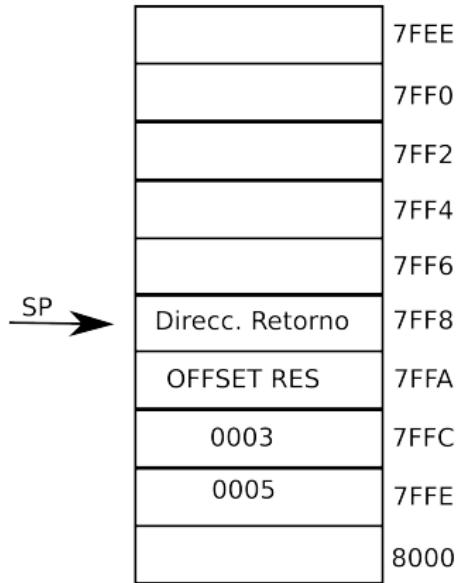
ORG	3000H	:	Subrutina MUL	ORG	2000H	:	Programa Principal
MUL:	PUSH	BX		MOV	AX, NUM1		
	MOV	BX, SP		PUSH	AX		
	PUSH	CX		MOV	AX, NUM2		
	PUSH	AX		PUSH	AX		
	PUSH	DX		MOV	AX, OFFSET RES		
	ADD	BX, 6		PUSH	AX		
	MOV	CX, [BX]		MOV	DX, 0		
	MOV	BX, [BX]		CALL	MUL		
	ADD	BX, 2		POP	AX		
	MOV	AX, [BX]		POP	AX		
SUMA:	ADD	DX, AX		POP	AX		
	DEC	CX		HLT			
	JNZ	SUMA		END			



Subrutinas

```
ORG 3000H : Subrutina MUL
MUL: PUSH BX
      MOV BX, SP
      PUSH CX
      PUSH AX
      PUSH DX
      ADD BX, 6
      MOV CX, [BX]
      MOV BX, [BX]
      ADD BX, 2
      MOV AX, [BX]
      SUMA: ADD DX, AX
             DEC CX
             JNZ SUMA
             SUB BX, 4
             MOV AX, [BX]
             MOV BX, AX
             MOV [BX], DX
             POP DX
             POP AX
             POP CX
             POP BX
             RET
```

```
ORG 2000H : Programa Principal
MOV AX, NUM1
PUSH AX
MOV AX, NUM2
PUSH AX
MOV AX, OFFSET RES
PUSH AX
MOV DX, 0
CALL MUL
POP AX
POP AX
POP AX
HLT
END
```



BX →

Subrutinas

```
ORG 3000H : Subrutina MUL
MUL: PUSH BX
      MOV BX, SP
      PUSH CX
      PUSH AX
      PUSH DX
      ADD BX, 6
      MOV CX, [BX]
      MOV BX, [BX]
      ADD BX, 2
      MOV AX, [BX]
      ADD DX, AX
      DEC CX
      JNZ SUMA
      SUB BX, 4
      MOV AX, [BX]
      MOV BX, AX
      MOV [BX], DX
      POP DX
      POP AX
      POP CX
      POP BX
      RET
```

```
ORG 2000H : Programa Principal
             MOV AX, NUM1
             PUSH AX
             MOV AX, NUM2
             PUSH AX
             MOV AX, OFFSET RES
             PUSH AX
             MOV DX, 0
             CALL MUL
             POP AX
             POP AX
             POP AX
             HLT
             END
```

	7FEE
	7FF0
	7FF2
	7FF4
SP →	Valor de BX
	7FF6
	Direcc. Retorno
	7FF8
	OFFSET RES
	7FFA
	0003
	7FFC
	0005
	7FFE
	8000

→ BX

Subrutinas

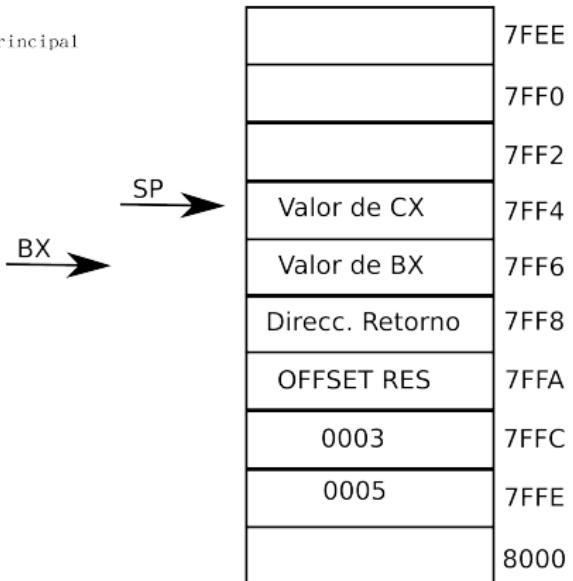
ORG	3000H	; Subrutina MUL	ORG	2000H ; Programa Principal
MUL :	PUSH	BX	MOV	AX, NUM1
	MOV	BX, SP	PUSH	AX
	PUSH	CX	MOV	AX, NUM2
	PUSH	AX	PUSH	AX
	PUSH	DX	MOV	AX, OFFSET RES
	ADD	BX, 6	PUSH	AX
	MOV	CX, [BX]	MOV	DX, 0
	MOV	BX, [BX]	CALL	MUL
	ADD	BX, 2	POP	AX
	MOV	AX, [BX]	POP	AX
SUMA :	ADD	DX, AX	POP	AX
	DEC	CX	HLT	
	JNZ	SUMA	END	
	SUB	BX, 4		
	MOV	AX, [BX]		
	MOV	BX, AX		
	MOV	[BX], DX		
	POP	DX		
	POP	AX		
	POP	CX		
	POP	BX		
	RET			



	7FEE
	7FF0
	7FF2
	7FF4
	7FF6
Valor de BX	7FF6
Direcc. Retorno	7FF8
OFFSET RES	7FFA
0003	7FFC
0005	7FFE
	8000

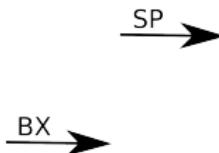
Subrutinas

ORG	3000H	; Subrutina MUL	ORG	2000H ; Programa Principal
MUL :	PUSH	BX	MOV	AX, NUM1
	MOV	BX, SP	PUSH	AX
	PUSH	CX	MOV	AX, NUM2
	PUSH	AX	PUSH	AX
	PUSH	DX	MOV	AX, OFFSET RES
	ADD	BX, 6	PUSH	AX
	MOV	CX, [BX]	MOV	DX, 0
	MOV	BX, [BX]	CALL	MUL
	ADD	BX, 2	POP	AX
	MOV	AX, [BX]	POP	AX
SUMA :	ADD	DX, AX	POP	AX
	DEC	CX	HLT	
	JNZ	SUMA	END	
	SUB	BX, 4		
	MOV	AX, [BX]		
	MOV	BX, AX		
	MOV	[BX], DX		
	POP	DX		
	POP	AX		
	POP	CX		
	POP	BX		
	RET			



Subrutinas

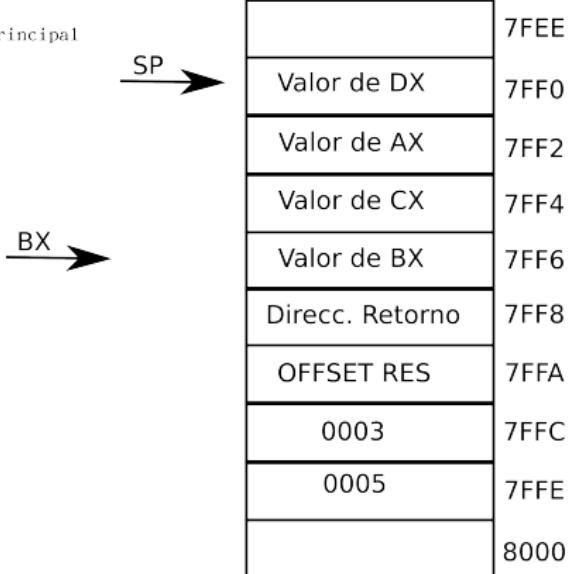
ORG	3000H	; Subrutina MUL	ORG	2000H ; Programa Principal
MUL :	PUSH	BX	MOV	AX, NUM1
	MOV	BX, SP	PUSH	AX
	PUSH	CX	MOV	AX, NUM2
	PUSH	AX	PUSH	AX
	PUSH	DX	MOV	AX, OFFSET RES
	ADD	BX, 6	PUSH	AX
	MOV	CX, [BX]	MOV	DX, 0
	MOV	BX, [BX]	CALL	MUL
	ADD	BX, 2	POP	AX
	MOV	AX, [BX]	POP	AX
SUMA :	ADD	DX, AX	POP	AX
	DEC	CX	POP	AX
	JNZ	SUMA	HLT	
	SUB	BX, 4	END	
	MOV	AX, [BX]		
	MOV	BX, AX		
	MOV	[BX], DX		
	POP	DX		
	POP	AX		
	POP	CX		
	POP	BX		
	RET			



	7FEE
	7FF0
Valor de AX	7FF2
Valor de CX	7FF4
Valor de BX	7FF6
Direcc. Retorno	7FF8
OFFSET RES	7FFA
0003	7FFC
0005	7FFE
	8000

Subrutinas

ORG	3000H	; Subrutina MUL	ORG	2000H ; Programa Principal
MUL :	PUSH	BX	MOV	AX, NUM1
	MOV	BX, SP	PUSH	AX
	PUSH	CX	MOV	AX, NUM2
	PUSH	AX	PUSH	AX
	PUSH	DX	MOV	AX, OFFSET RES
	ADD	BX, 6	PUSH	AX
	MOV	CX, [BX]	MOV	DX, 0
	MOV	BX, [BX]	CALL	MUL
	ADD	BX, 2	POP	AX
	MOV	AX, [BX]	POP	AX
SUMA :	ADD	DX, AX	POP	AX
	DEC	CX	HLT	
	JNZ	SUMA	END	
	SUB	BX, 4		
	MOV	AX, [BX]		
	MOV	BX, AX		
	MOV	[BX], DX		
	POP	DX		
	POP	AX		
	POP	CX		
	POP	BX		
	RET			



Subrutinas

ORG	3000H	; Subrutina MUL	ORG	2000H ; Programa Principal	
MUL :	PUSH	BX	MOV	AX, NUM1	
	MOV	BX, SP	PUSH	AX	
	PUSH	CX	MOV	AX, NUM2	
	PUSH	AX	PUSH	AX	
	PUSH	DX	MOV	AX, OFFSET RES	
	ADD	BX, 6	PUSH	AX	
	MOV	CX, [BX]	MOV	DX, 0	
	MOV	BX, [BX]	CALL	MUL	
	ADD	BX, 2	POP	AX	
	MOV	AX, [BX]	POP	AX	
SUMA :	ADD	DX, AX	POP	AX	
	DEC	CX	HLT		
	JNZ	SUMA	END		
	SUB	BX, 4			
	MOV	AX, [BX]			
	MOV	BX, AX			
	MOV	[BX], DX			
	POP	DX			
	POP	AX			
	POP	CX			
	POP	BX			
	RET				

SP →

	7FEE
Valor de DX	7FF0
Valor de AX	7FF2
Valor de CX	7FF4
Valor de BX	7FF6
Direcc. Retorno	7FF8
OFFSET RES	7FFA
0003	7FFC
0005	7FFE
	8000

BX →

Subrutinas

ORG	3000H	; Subrutina MUL	ORG	2000H ; Programa Principal
MUL:	PUSH	BX	MOV	AX, NUM1
	MOV	BX, SP	PUSH	AX
	PUSH	CX	MOV	AX, NUM2
	PUSH	AX	PUSH	AX
	PUSH	DX	MOV	AX, OFFSET RES
	ADD	BX, 6	PUSH	AX
	MOV	CX, [BX]	MOV	DX, 0
	MOV	BX, [BX]	CALL	MUL
	ADD	BX, 2	POP	AX
	MOV	AX, [BX]	POP	AX
SUMA:	ADD	DX, AX	POP	AX
	DEC	CX	HLT	
	JNZ	SUMA	END	
	SUB	BX, 4		
	MOV	AX, [BX]		
	MOV	BX, AX		
	MOV	[BX], DX		
	POP	DX		
	POP	AX		
	POP	CX		
	POP	BX		
	RET			

SP →

	7FEE
Valor de DX	7FF0
Valor de AX	7FF2
Valor de CX	7FF4
Valor de BX	7FF6
Direcc. Retorno	7FF8
OFFSET RES	7FFA
0003	7FFC
0005	7FFE
	8000

BX →

Subrutinas

ORG	3000H	; Subrutina MUL	ORG	2000H ; Programa Principal	
MUL :	PUSH	BX	MOV	AX, NUM1	
	MOV	BX, SP	PUSH	AX	
	PUSH	CX	MOV	AX, NUM2	
	PUSH	AX	PUSH	AX	
	PUSH	DX	MOV	AX, OFFSET RES	
	ADD	BX, 6	PUSH	AX	
	MOV	CX, [BX]	MOV	DX, 0	
	MOV	BX, [BX]	CALL	MUL	
	ADD	BX, 2	POP	AX	
	MOV	AX, [BX]	POP	AX	
SUMA :	ADD	DX, AX	POP	AX	
	DEC	CX	HLT		
	JNZ	SUMA	END		
	SUB	BX, 4			
	MOV	AX, [BX]			
	MOV	BX, AX			
	MOV	[BX], DX			
	POP	DX			
	POP	AX			
	POP	CX			
	POP	BX			
	RET				

SP →

	7FEE
Valor de DX	7FF0
Valor de AX	7FF2
Valor de CX	7FF4
Valor de BX	7FF6
Direcc. Retorno	7FF8
OFFSET RES	7FFA
0003	7FFC
0005	7FFE
	8000

BX →

Subrutinas

ORG	3000H	: Subrutina MUL	ORG	2000H : Programa Principal
MUL :	PUSH	BX	MOV	AX, NUM1
	MOV	BX, SP	PUSH	AX
	PUSH	CX	MOV	AX, NUM2
	PUSH	AX	PUSH	AX
	PUSH	DX	MOV	AX, OFFSET RES
	ADD	BX, 6	PUSH	AX
	MOV	CX, [BX]	MOV	DX, 0
	MOV	BX, [BX]	CALL	MUL
	ADD	BX, 2	POP	AX
	MOV	AX, [BX]	POP	AX
SUMA :	ADD	DX, AX	POP	AX
	DEC	CX	HLT	
	JNZ	SUMA	END	
	SUB	BX, 4		
	MOV	AX, [BX]		
	MOV	BX, AX		
	MOV	[BX], DX		
	POP	DX		
	POP	AX		
	POP	CX		
	POP	BX		
	RET			

SP →

BX →

	7FEE
Valor de DX	7FF0
Valor de AX	7FF2
Valor de CX	7FF4
Valor de BX	7FF6
Direcc. Retorno	7FF8
OFFSET RES	7FFA
0003	7FFC
0005	7FFE
	8000

Subrutinas

ORG	3000H	; Subrutina MUL	ORG	2000H ; Programa Principal
MUL :	PUSH	BX	MOV	AX, NUM1
	MOV	BX, SP	PUSH	AX
	PUSH	CX	MOV	AX, NUM2
	PUSH	AX	PUSH	AX
	PUSH	DX	MOV	AX, OFFSET RES
	ADD	BX, 6	PUSH	AX
	MOV	CX, [BX]	MOV	DX, 0
	MOV	BX, [BX]	CALL	MUL
	ADD	BX, 2	POP	AX
	MOV	AX, [BX]	POP	AX
SUMA :	ADD	DX, AX	POP	AX
	DEC	CX	HLT	
	JNZ	SUMA	END	
	SUB	BX, 4		
	MOV	AX, [BX]		
	MOV	BX, AX		
	MOV	[BX], DX		
	POP	DX		
	POP	AX		
	POP	CX		
	POP	BX		
	RET			

SP →

BX →

	7FEE
Valor de DX	7FF0
Valor de AX	7FF2
Valor de CX	7FF4
Valor de BX	7FF6
Direcc. Retorno	7FF8
OFFSET RES	7FFA
0003	7FFC
0005	7FFE
	8000

Subrutinas

ORG	3000H	: Subrutina MUL	ORG	2000H : Programa Principal
MUL :	PUSH	BX	MOV	AX, NUM1
	MOV	BX, SP	PUSH	AX
	PUSH	CX	MOV	AX, NUM2
	PUSH	AX	PUSH	AX
	PUSH	DX	MOV	AX, OFFSET RES
	ADD	BX, 6	PUSH	AX
	MOV	CX, [BX]	MOV	DX, 0
	MOV	BX, [BX]	CALL	MUL
	ADD	BX, 2	POP	AX
	MOV	AX, [BX]	POP	AX
SUMA :	ADD	DX, AX	POP	AX
	DEC	CX	HLT	
	JNZ	SUMA	END	
	SUB	BX, 4		
	MOV	AX, [BX]		
	MOV	BX, AX		
	MOV	[BX], DX		
	POP	DX		
	POP	AX		
	POP	CX		
	POP	BX		
	RET			

	7FEE
Valor de DX	7FF0
Valor de AX	7FF2
Valor de CX	7FF4
Valor de BX	7FF6
Direcc. Retorno	7FF8
OFFSET RES	7FFA
0003	7FFC
0005	7FFE
	8000

SP →

BX →

Subrutinas

ORG	3000H	: Subrutina MUL	ORG	2000H : Programa Principal
MUL :	PUSH	BX	MOV	AX, NUM1
	MOV	BX, SP	PUSH	AX
	PUSH	CX	MOV	AX, NUM2
	PUSH	AX	PUSH	AX
	PUSH	DX	MOV	AX, OFFSET RES
	ADD	BX, 6	PUSH	AX
	MOV	CX, [BX]	MOV	DX, 0
	MOV	BX, [BX]	CALL	MUL
	ADD	BX, 2	POP	AX
	MOV	AX, [BX]	POP	AX
SUMA :	ADD	DX, AX	POP	AX
	DEC	CX	HLT	
	JNZ	SUMA	END	
	SUB	BX, 4		
	MOV	AX, [BX]		
	MOV	BX, AX		
	MOV	[BX], DX		
	POP	DX		
	POP	AX		
	POP	CX		
	POP	BX		
	RET			

	7FEE
Valor de DX	7FF0
Valor de AX	7FF2
Valor de CX	7FF4
Valor de BX	7FF6
Direcc. Retorno	7FF8
OFFSET RES	7FFA
0003	7FFC
0005	7FFE
	8000

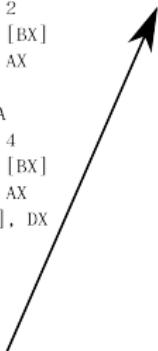
SP →

BX →

Subrutinas

ORG	3000H	:	Subrutina MUL	ORG	2000H	:	Programa Principal
MUL:	PUSH	BX		MOV	AX, NUM1		
	MOV	BX, SP		PUSH	AX		
	PUSH	CX		MOV	AX, NUM2		
	PUSH	AX		PUSH	AX		
	PUSH	DX		MOV	AX, OFFSET RES		
	ADD	BX, 6		PUSH	AX		
	MOV	CX, [BX]		MOV	DX, 0		
	MOV	BX, [BX]		CALL	MUL		
	ADD	BX, 2		POP	AX		
	MOV	AX, [BX]		POP	AX		
SUMA:	ADD	DX, AX		POP	AX		
	DEC	CX		HLT			
	JNZ	SUMA		END			
	SUB	BX, 4					
	MOV	AX, [BX]					
	MOV	BX, AX					
	MOV	[BX], DX					
	POP	DX					
	POP	AX					
	POP	CX					
	POP	BX					
	RET						

	7FEE
Valor de DX	7FF0
Valor de AX	7FF2
Valor de CX	7FF4
Valor de BX	7FF6
Direcc. Retorno	7FF8
OFFSET RES	7FFA
0003	7FFC
0005	7FFE
	8000



SP →

BX →

Subrutinas

ORG	3000H	: Subrutina MUL	ORG	2000H : Programa Principal
MUL:	PUSH	BX	MOV	AX, NUM1
	MOV	BX, SP	PUSH	AX
	PUSH	CX	MOV	AX, NUM2
	PUSH	AX	PUSH	AX
	PUSH	DX	MOV	AX, OFFSET RES
	ADD	BX, 6	PUSH	AX
	MOV	CX, [BX]	MOV	DX, 0
	MOV	BX, [BX]	CALL	MUL
	ADD	BX, 2	POP	AX
	MOV	AX, [BX]	POP	AX
SUMA:	ADD	DX, AX	POP	AX
	DEC	CX	HLT	
	JNZ	SUMA	END	
	SUB	BX, 4		
	MOV	AX, [BX]		
	MOV	BX, AX		
	MOV	[BX], DX		
	POP	DX		
	POP	AX		
	POP	CX		
	POP	BX		
	RET			

	7FEE
Valor de DX	7FF0
Valor de AX	7FF2
Valor de CX	7FF4
Valor de BX	7FF6
Direcc. Retorno	7FF8
OFFSET RES	7FFA
0003	7FFC
0005	7FFE
	8000

SP →

BX →

Subrutinas

ORG	3000H	: Subrutina MUL	ORG	2000H : Programa Principal
MUL:	PUSH	BX	MOV	AX, NUM1
	MOV	BX, SP	PUSH	AX
	PUSH	CX	MOV	AX, NUM2
	PUSH	AX	PUSH	AX
	PUSH	DX	MOV	AX, OFFSET RES
	ADD	BX, 6	PUSH	AX
	MOV	CX, [BX]	MOV	DX, 0
	MOV	BX, [BX]	CALL	MUL
	ADD	BX, 2	POP	AX
	MOV	AX, [BX]	POP	AX
SUMA:	ADD	DX, AX	POP	AX
	DEC	CX	POP	AX
	JNZ	SUMA		HLT
	SUB	BX, 4		END
	MOV	AX, [BX]		
	MOV	BX, AX		
	MOV	[BX], DX		
	POP	DX		
	POP	AX		
	POP	CX		
	POP	BX		
	RET			

	7FEE
Valor de DX	7FF0
Valor de AX	7FF2
Valor de CX	7FF4
Valor de BX	7FF6
Direcc. Retorno	7FF8
OFFSET RES	7FFA
0003	7FFC
0005	7FFE
	8000



Subrutinas

ORG	3000H	: Subrutina MUL	ORG	2000H : Programa Principal		7FEE
MUL:	PUSH	BX	MOV	AX, NUM1	Valor de DX	7FF0
	MOV	BX, SP	PUSH	AX	Valor de AX	7FF2
	PUSH	CX	MOV	AX, NUM2	Valor de CX	7FF4
	PUSH	AX	PUSH	AX	Valor de BX	7FF6
	PUSH	DX	MOV	AX, OFFSET RES	Direcc. Retorno	7FF8
	ADD	BX, 6	PUSH	AX	OFFSET RES	7FFA
	MOV	CX, [BX]	MOV	DX, 0	0003	7FFC
	MOV	BX, [BX]	CALL	MUL	0005	7FFE
	ADD	BX, 2	POP	AX		8000
	MOV	AX, [BX]	POP	AX		
SUMA:	ADD	DX, AX	POP	AX		
	DEC	CX	HLT			
	JNZ	SUMA	END			
	SUB	BX, 4				
	MOV	AX, [BX]				
	MOV	BX, AX				
	MOV	[BX], DX				
	POP	DX				
	POP	AX				
	POP	CX				
	POP	BX				
	RET					

SP →

BX →