

TEST

```
data SEGMENT
Val1 db 11110000b
Val2 db 50
String db 'new'
Val3 dw 4567d
Val4 dw 0EFh
Val5 dd 67ff89h
Val6 dd 150
Aval1 dw 150
Aval2 db 11000000b
Tval = 45
data ENDS
```

```
code SEGMENT
begin:
mov esi, 0FFFFh
mov edi, 0FFh
cmpsb
Point:
mov bh, 11110000b
mov bl, 11110000b
inc bl
jbe Point
dec ds: dword ptr [ebp + ecx + 6]
bsr ebx, [ebp + ecx + 6]
mov edx, 0EFh
and [edx + esi + 10], edx
mov edx, 0FFFFFFFFh
or dword ptr es: [edx + esi + 10], 0101b
jmp short Label1
Label2:
mov dl, 'a'
Label1:
mov ebx, 506
mov bl, 50
idiv bl
mov ecx, Tval
Tval = 67
mov ecx, Tval
jbe Point1
mov bh, 'c'
Point1:
jmp short Label2
code ENDS
end begin
```

data SEGMENT

| No |	Token	| Length |	Type

| 1 |	data	| 4 |	identifier
| 2 |	segment	| 7 |	directive

| Label |	Mnemocode	| Operand1 |	Operand2

| 0 |	1 |	1 |	2 |

| 0 |	1 |	0 |	0 |

Val1 db 11110000b

| No |	Token	| Length |	Type

| 1 |	Val1	| 4 |	user identifier
| 2 |	db	| 2 |	type
| 3 |	11110000b	| 9 |	binary

| Label |	Mnemocode	| Operand1 |	Operand2

| 1 |	2 |	1 |	3 |

| 0 |	1 |	0 |	0 |

Val2 db 50

No	Token	Length	Type	

1	Val2	4	user identifier	
2	db	2	type	
3	50	2	decimal	

|	Label	|	Mnemocode	|	Operand1	|	Operand2	|						

|	1	|	2	|	1	|	3	|	1	|	0	|	0	|

String db 'new'

| No |	Token	| Length |	Type	

| 1|	String|	6|	user identifier|	
| 2|	db|	2|	type|	
| 3|	'|	1|	one char|	
| 4|	new|	3|	symbols|	
| 5|	'|	1|	one char|	

Label	Mnemocode	Operand1	Operand2	

| 1 | 2 | 1 | 3 | 1 | 0 | 0 |

Val3 dw 4567d

| No | Token | Length | Type |

1	Val3	4	user identifier
2	dw	2	type
3	4567d	5	decimal

| Label | Mnemocode | Operand1 | Operand2 |

| 1 | 2 | 1 | 3 | 1 | 0 | 0 |

Val4 dw 0EFh

| No | Token | Length | Type |

1	Val4	4	user identifier
2	dw	2	type
3	0efh	4	hexadecimal

Label	Mnemocode	Operand1	Operand2
1	2	1	3
1		0	0

Val5 dd 67ff89h

No	Token	Length	Type
1	Val5	4	user identifier
2	dd	2	type
3	67ff89h	7	hexadecimal

Label	Mnemocode	Operand1	Operand2
1	2	1	3
1		0	0

Val6 dd 150

No	Token	Length	Type
1	Val6	4	user identifier
2	dd	2	type
3	150	3	decimal

Label	Mnemocode	Operand1	Operand2
1	2	1	3
1		1	0

Aval1 dw 150

No	Token	Length	Type
1	Aval1	5	user identifier
2	dw	2	type
3	150	3	decimal

Label	Mnemocode	Operand1	Operand2
1	2	1	3
1		1	0

Aval2 db 11000000b

No	Token	Length	Type
1	Aval2	5	user identifier
2	db	2	type
3	11000000b	9	binary

Label	Mnemocode	Operand1	Operand2
1	2	1	3
1	0	0	0

Tval = 45

No	Token	Length	Type
1	Tval	4	user identifier
2	=	1	const assignment
3	45	2	decimal

Label	Mnemocode	Operand1	Operand2
1	2	1	3
1	0	0	0

data ENDS

No	Token	Length	Type
1	data	4	identifier
2	ends	4	directive

Label	Mnemocode	Operand1	Operand2
0	1	1	2
1	1	0	0

code SEGMENT

No	Token	Length	Type
1	code	4	identifier
2	segment	7	directive

Label	Mnemocode	Operand1	Operand2
0	1	1	2
1	1	0	0

begin:

No	Token	Length	Type
1	begin	5	user identifier
2	:	1	one char

Label	Mnemocode	Operand1	Operand2
1	0	0	0

mov esi, 0FFFFh

No	Token	Length	Type
1	mov	3	instruction
2	esi	3	32-bit register
3	,	1	one char
4	0ffffh	6	hexadecimal

Label	Mnemocode	Operand1	Operand2
0	1	1	2

mov edi, 0FFh

No	Token	Length	Type
1	mov	3	instruction
2	edi	3	32-bit register
3	,	1	one char

|	4|	0ffh|	4|	hexadecimal|
--	---	------	---	-------------

|	Label	|	Mnemocode	|	Operand1	|	Operand2	|
--	-------	--	-----------	--	----------	--	----------	--

|	0|	1|	1|	2|	1|	4|	1|
--	---	---	---	---	---	---	---

cmpsb

|	No	|	Token	|	Length	|	Type	|
--	----	--	-------	--	--------	--	------	--

|	1|	cmpsb|	5|	instruction|
--	---	-------	---	-------------

|	Label	|	Mnemocode	|	Operand1	|	Operand2	|
--	-------	--	-----------	--	----------	--	----------	--

|	0|	1|	1|	0|	0|	0|	0|
--	---	---	---	---	---	---	---

Point:

|	No	|	Token	|	Length	|	Type	|
--	----	--	-------	--	--------	--	------	--

|	1|	Point|	5|	user identifier|
--	---	-------	---	-----------------

|	2|	:	1|	one char|
--	---	---	---	----------

```

-----
| Label | Mnemocode | Operand1 | Operand2 |
-----

```

```

|      1|      0|      0|      0|      0|      0|      0|
-----

```

```

mov bh, 11110000b

```

```

-----
| No | Token | Length | Type |
-----

```

```

| 1|      mov|      3|      instruction|
| 2|      bh|      2|      8-bit register|
| 3|      ,|      1|      one char|
| 4| 11110000b|      9|      binary|
-----

```

```

-----

```

```

| Label | Mnemocode | Operand1 | Operand2 |
-----

```

```

|      0|      1|      1|      2|      1|      4|      1|
-----

```

```

mov bl, 11110000b

```

```

-----
| No | Token | Length | Type |
-----

```

```

| 1|      mov|      3|      instruction|
| 2|      bl|      2|      8-bit register|
| 3|      ,|      1|      one char|

```

|	4|	11110000b|	9|	binary|
--	---	-----------	---	--------

|	Label	|	Mnemocode	|	Operand1	|	Operand2	|
--	-------	--	-----------	--	----------	--	----------	--

|	0|	1|	1|	2|	1|	4|	1|
--	---	---	---	---	---	---	---

inc bl

|	No	|	Token	|	Length	|	Type	|
--	----	--	-------	--	--------	--	------	--

|	1|	inc|	3|	instruction|
--	---	-----	---	-------------

|	2|	bl|	2|	8-bit register|
--	---	----	---	----------------

|	Label	|	Mnemocode	|	Operand1	|	Operand2	|
--	-------	--	-----------	--	----------	--	----------	--

|	0|	1|	1|	2|	1|	0|	0|
--	---	---	---	---	---	---	---

jbe Point

|	No	|	Token	|	Length	|	Type	|
--	----	--	-------	--	--------	--	------	--

|	1|	jbe|	3|	instruction|
--	---	-----	---	-------------

|	2|	point|	5|	user identifier|
--	---	-------	---	-----------------

Label	Mnemocode	Operand1	Operand2
-------	-----------	----------	----------

0	1	1	2	1	0	0
---	---	---	---	---	---	---

```
dec ds: dword ptr [ebp + ecx + 6]
```

No	Token	Length	Type
----	-------	--------	------

1	dec	3	instruction
---	-----	---	-------------

2	ds	2	segment register
---	----	---	------------------

3	:	1	one char
---	---	---	----------

4	dword	5	32-bits
---	-------	---	---------

5	ptr	3	pointer
---	-----	---	---------

6	[1	one char
---	---	---	----------

7	ebp	3	32-bit register
---	-----	---	-----------------

8	+	1	one char
---	---	---	----------

9	ecx	3	32-bit register
---	-----	---	-----------------

10	+	1	one char
----	---	---	----------

11	6	1	decimal
----	---	---	---------

12]	1	one char
----	---	---	----------

Label	Mnemocode	Operand1	Operand2
-------	-----------	----------	----------

0	1	1	2	8	0	0
---	---	---	---	---	---	---

bsr ebx, [ebp + ecx + 6]

No	Token	Length	Type	

1	bsr	3	instruction	
2	ebx	3	32-bit register	
3	,	1	one char	
4	[	1	one char	
5	ebp	3	32-bit register	
6	+	1	one char	
7	ecx	3	32-bit register	
8	+	1	one char	
9	6	1	decimal	
10	]	1	one char	

Label	Mnemocode	Operand1		Operand2		

0	1	1	2	1	4	5

mov edx, 0EFh

No	Token	Length	Type	

1	mov	3	instruction	

|	2|	edx|	3|	32-bit register|
|	3|	,|	1|	one char|
|	4|	0efh|	4|	hexadecimal|

|	Label	|	Mnemocode	|	Operand1	|	Operand2	|
|	0|	|	1|	|	1|	|	2|	|
|		|	1|	|	2|	|	1|	|
|		|		|		|	4|	|
|		|		|		|	1|	|

and [edx + esi + 10], edx

|	No	|	Token	|	Length	|	Type	|
|	1|	|	and|	|	3|	|	instruction|	|
|	2|	|	[|	|	1|	|	one char|	|
|	3|	|	edx|	|	3|	|	32-bit register|	|
|	4|	|	+|	|	1|	|	one char|	|
|	5|	|	esi|	|	3|	|	32-bit register|	|
|	6|	|	+|	|	1|	|	one char|	|
|	7|	|	10|	|	2|	|	decimal|	|
|	8|	|	]|	|	1|	|	one char|	|
|	9|	|	,|	|	1|	|	one char|	|
|	10|	|	edx|	|	3|	|	32-bit register|	|

Label	Mnemocode	Operand1	Operand2
0	1	1	2
5	10	1	

```
mov edx, 0FFFFFFFFh
```

No	Token	Length	Type
1	mov	3	instruction
2	edx	3	32-bit register
3	,	1	one char
4	0xffffffffh	10	hexadecimal

Label	Mnemocode	Operand1	Operand2
0	1	1	2
1	4	1	

```
or dword ptr es: [edx + esi + 10], 0101b
```

No	Token	Length	Type
1	or	2	instruction
2	dword	5	32-bits
3	ptr	3	pointer

|	4|	es|	2|	segment register|
|	5|	:|	1|	one char|
|	6|	[|	1|	one char|
|	7|	edx|	3|	32-bit register|
|	8|	+|	1|	one char|
|	9|	esi|	3|	32-bit register|
|	10|	+|	1|	one char|
|	11|	10|	2|	decimal|
|	12|	]|	1|	one char|
|	13|	,|	1|	one char|
|	14|	0101b|	5|	binary|

|	Label	|	Mnemocode	|	Operand1	|	Operand2	|
|	0|	1|	1|	2|	8|	14|	1|	

jmp short Label1

|	No	|	Token	|	Length	|	Type	|
|	1|		jmp|		3|		instruction|	
|	2|		short|		5|	jump within [-128;127] bites|		
|	3|		label1|		6|	user identifier|		

```
-----  
| Label | Mnemocode | Operand1 | Operand2 |  
-----
```

```
|      0|      1|      1|      2|      2|      0|      0|  
-----
```

```
Label2:
```

```
-----  
| No | Token | Length | Type |  
-----
```

```
|  1| Label2|      6| user identifier|  
|  2|      :|      1|      one char|  
-----
```

```
-----  
| Label | Mnemocode | Operand1 | Operand2 |  
-----
```

```
|      1|      0|      0|      0|      0|      0|      0|  
-----
```

```
mov dl, 'a'
```

```
-----  
| No | Token | Length | Type |  
-----
```

```
|  1|    mov|      3| instruction|  
|  2|     dl|      2| 8-bit register|  
|  3|      ,|      1|      one char|  
|  4|      '|      1|      one char|  
|  5|     a|      1|      symbols|  
-----
```

|	6|		'|		1|		one char|
--	---	--	---	--	---	--	----------

|	Label|	Mnemocode|	Operand1|		Operand2|		|
--	-------	-----------	----------	--	----------	--	--

|	0|	1|	1|	2|	1|	4|	1|
--	---	---	---	---	---	---	---

Label1:

|	No|	Token|	Length|		Type|		|
--	----	-------	--------	--	------	--	--

|	1|	Label1|	6|		user identifier|		|
--	---	--------	---	--	-----------------	--	--

|	2|	:	1|		one char|		|
--	---	---	---	--	----------	--	--

|	Label|	Mnemocode|	Operand1|		Operand2|		|
--	-------	-----------	----------	--	----------	--	--

|	1|	0|	0|	0|	0|	0|	0|
--	---	---	---	---	---	---	---

mov ebx, 506

|	No|	Token|	Length|		Type|		|
--	----	-------	--------	--	------	--	--

|	1|	mov|	3|		instruction|		|
--	---	-----	---	--	-------------	--	--

|	2|	ebx|	3|		32-bit register|		|
--	---	-----	---	--	-----------------	--	--

|	3|	,	1|		one char|		|
--	---	---	---	--	----------	--	--

|	4|	506|	3|	decimal|
--	---	-----	---	---------

|	Label	|	Mnemocode	|	Operand1	|	Operand2	|
--	-------	--	-----------	--	----------	--	----------	--

|	0|	1|	1|	2|	1|	4|	1|
--	---	---	---	---	---	---	---

mov bl, 50

|	No	|	Token	|	Length	|	Type	|
--	----	--	-------	--	--------	--	------	--

|	1|	mov|	3|	instruction|
--	---	-----	---	-------------

|	2|	bl|	2|	8-bit register|
--	---	----	---	----------------

|	3|	,|	1|	one char|
--	---	---	---	----------

|	4|	50|	2|	decimal|
--	---	----	---	---------

|	Label	|	Mnemocode	|	Operand1	|	Operand2	|
--	-------	--	-----------	--	----------	--	----------	--

|	0|	1|	1|	2|	1|	4|	1|
--	---	---	---	---	---	---	---

idiv bl

|	No	|	Token	|	Length	|	Type	|
--	----	--	-------	--	--------	--	------	--

|	1|	idiv|	4|	instruction|
--	---	------	---	-------------

|	2|	bl|	2|	8-bit register|
--	---	----	---	----------------

|	Label|	Mnemocode|	Operand1|	Operand2|
--	-------	-----------	----------	----------

|	0|	1|	1|	2|	1|	0|	0|
--	---	---	---	---	---	---	---

mov ecx, Tval

|	No|	Token|	Length|	Type|
--	----	-------	--------	------

|	1|	mov|	3|	instruction|
--	---	-----	---	-------------

|	2|	ecx|	3|	32-bit register|
--	---	-----	---	-----------------

|	3|	,|	1|	one char|
--	---	---	---	----------

|	4|	tval|	4|	user identifier|
--	---	------	---	-----------------

|	Label|	Mnemocode|	Operand1|	Operand2|
--	-------	-----------	----------	----------

|	0|	1|	1|	2|	1|	4|	1|
--	---	---	---	---	---	---	---

Tval = 67

|	No|	Token|	Length|	Type|
--	----	-------	--------	------

|	1|	Tval|	4|	user identifier|
--	---	------	---	-----------------

2	=	1	const assignment
3	67	2	decimal

Label	Mnemocode	Operand1	Operand2
-------	-----------	----------	----------

1	2	1	3	1	0	0
---	---	---	---	---	---	---

mov ecx, Tval

No	Token	Length	Type
----	-------	--------	------

1	mov	3	instruction
---	-----	---	-------------

2	ecx	3	32-bit register
---	-----	---	-----------------

3	,	1	one char
---	---	---	----------

4	tval	4	user identifier
---	------	---	-----------------

Label	Mnemocode	Operand1	Operand2
-------	-----------	----------	----------

0	1	1	2	1	4	1
---	---	---	---	---	---	---

jbe Point1

No	Token	Length	Type
----	-------	--------	------

|	1|	jbe|	3|	instruction|
|	2|	point1|	6|	user identifier|

|	Label	|	Mnemocode	|	Operand1	|	Operand2	|
--	-------	--	-----------	--	----------	--	----------	--

|	0|	1|	1|	2|	1|	0|	0|
--	---	---	---	---	---	---	---

mov bh, 'c'

|	No	|	Token	|	Length	|	Type	|
--	----	--	-------	--	--------	--	------	--

|	1|	mov|	3|	instruction|
--	---	-----	---	-------------

|	2|	bh|	2|	8-bit register|
--	---	----	---	----------------

|	3|	,|	1|	one char|
--	---	---	---	----------

|	4|	'|	1|	one char|
--	---	---	---	----------

|	5|	c|	1|	symbols|
--	---	---	---	---------

|	6|	'|	1|	one char|
--	---	---	---	----------

|	Label	|	Mnemocode	|	Operand1	|	Operand2	|
--	-------	--	-----------	--	----------	--	----------	--

|	0|	1|	1|	2|	1|	4|	1|
--	---	---	---	---	---	---	---

Point1:

No	Token	Length	Type
1	Point1	6	user identifier
2	:	1	one char

Label	Mnemocode	Operand1	Operand2
1	0	0	0

jmp short Label2

No	Token	Length	Type
1	jmp	3	instruction
2	short	5	jump within [-128;127] bites
3	label2	6	user identifier

Label	Mnemocode	Operand1	Operand2
0	1	1	2

code ENDS

No	Token	Length	Type
1	code	4	identifier
2	ends	4	directive

Label	Mnemocode	Operand1	Operand2
0	1	1	2
1	0	0	0

end begin

No	Token	Length	Type
1	end	3	directive
2	begin	5	user identifier

Label	Mnemocode	Operand1	Operand2
0	1	1	2
1	0	0	0