

-----SYMBOL TABLE-----		
LABEL		ADDRESS
PM1		0100000
PM2		0100001
PM3		0100010
X		0101000
PM4		0100011
Y		0101001
CNT		0100110
ZERO		0100100
SUM		0100111
LOOP		0001100
OUT		0011110
ONE		0100101
ADJ		0011001

SECOND PASS:

-----MACHINE CODE-----

```

011110100000
011110100001
011110100010
100000101000
011110100000
011110100001
011110100011
100000101001
000000101000
000010100110
000000100100
000010100111
000000101001
000000100110
000110000000
010110011110
000000100110
000000100101
001000000000
001110000000
010100011001
000000100111
000000100110
000100000000
000010100111
000000100110
000000100101
000100000000
000010100110
010100001100
100010100111
111110000000
000000011001
000000100101
000000000001
000000000010
000000000000
000000000001
000000000000
000000000000
000000000000
000000000000

```

Assembly File

```

.st
OTC PM1
OTC PM2
OTC PM3
INI X
OTC PM1
OTC PM2
OTC PM4
INI Y
PSH X
POP CNT
PSH ZERO
POP SUM
LOOP PSH Y
PSH CNT
SUB
JEQ OUT
PSH CNT
PSH ONE
AND
TSS
JMP ADJ
PSH SUM
PSH CNT
ADD
POP SUM
ADJ PSH CNT
PSH ONE
ADD
POP CNT
JMP LOOP
OUT OTI SUM
HLT
PM1 .dc 031
PM2 .dc 045
PM3 .dc 001
PM4 .dc 002
ZERO .dw 0
ONE .dw 1
CNT .dw 0
SUM .dw 0
X .dw 0
Y .dw 0
.nd

```

-----SYMBOL TABLE-----		
LABEL	ADDRESS	
X	0000101	

-----UNDEFINED TABLE-----		
LABEL	LINE NUMBERS	
PM1	0 3 4	
PM2	1	
PM3	2	

SECOND PASS:

-----MACHINE CODE-----		
011110000000		
011110000000		
011110000000		
011110000000		
011110000000		
000000000001		

Assembly File

```
.st
OTC PM1
OTC PM2
OTC PM3
OTC PM1
OTC PM1
X .dw 1
.nd
```

-----MULTIPLY DEFINED-----		
LABEL	LINES REFERENCED	
LOOP	5 7	
X	4 6 8	

-----SYMBOL TABLE-----		
LABEL	ADDRESS	
T	0001001	

-----UNDEFINED TABLE-----		
LABEL	LINE NUMBERS	
PM1	0 3	
PM2	1	
PM3	2	

-----MACHINE CODE-----		
011110000000		
011110000000		
011110000000		
011110000000		
MMMMMMMMMMMM		
MMMMMMMMMMMM		
MMMMMMMMMMMM		
MMMMMMMMMMMM		
MMMMMMMMMMMM		
000000000001		

Assembly File:

```
.st
OTC PM1
OTC PM2
OTC PM3
OTC PM1
OTC X
LOOP PSH T
X .dw 1
LOOP PSH T
X .dw 1
T .dw 1
.nd
```