ΕΡΓΑΣΤΗΡΙΟ ΣΥΓΧΡΟΝΗΣ ΑΡΧΙΤΕΚΤΟΝΙΚΗΣ

Τριαντάφυλλος Πράππας ΑΜ:1067504

ΕΡΓΑΣΤΗΡΙΑΚΗ ΑΣΚΗΣΗ 4

PC: 0011 BR: 0101 SP: 0111 LR: 0001 X: 1001 temp: 1011

BOOTST		BI	CO				APO	BPO	DDA	SH	SE	MW	MARC	MSTAT	LD	PC	CARR	MD	DDAT	ADDR
RAP	BRA	Ν	Ν	1	1	1	RT	RT	TA	~	LB	E~	LK	US	S~	E~	YE~	E~	AE~	ESS
		(2:	(2:	(2:	(5:	(8:														
	(4:0)	0)	0)	0)	3)	6)	(3:0)	(3:0)	(1:0)											
SW+0-	XXX	00	XX	11	00	01	XXX													
>PC,MAR	XX	0	Χ	1	0	1	Χ	0011	XX	0	1	1	1	0	1	0	1	1	1	m00
NEXT(PC	XXX	00	XX	00	00	00	XXX	XXX												
)	XX	0	Χ	0	0	1	Χ	Χ	XX	0	0	1	0	0	0	0	0	0	0	m01

LOAD		BI	CO				APO	BPO	DDA	SH	SE	MW	MARC	MSTAT	LD	PC	CARR	MD	DDATA	ADDRE
BR #K	BRA	Ν	Ν	1	1	1	RT	RT	TA	~	LB	E~	LK	US	S~	E~	YE~	E~	E~	SS
		(2:	(2:	(2:	(5:	(8:														
	(4:0)	0)	0)	0)	3)	6)	(3:0)	(3:0)	(1:0)											
PC+1-																				
>PC,M	XXX	00	XX	10	00	01														
AR	XX	0	Χ	1	0	1	0011	0011	01	0	1	1	1	0	1	1	1	1	0	m02
MDR +																				
0 ->	XXX	00	XX	11	00	01	XXX													
BR	XX	0	Χ	1	0	1	Χ	0101	XX	0	1	1	0	0	1	1	1	0	1	m03
PC+1-																				
>PC,M	XXX	00	XX	10	00	01														
AR	XX	0	Χ	1	0	1	0011	0011	01	0	1	1	1	0	1	1	1	1	0	m04
Next(P	XXX	00	XX	00	00	00	XXX	XXX												
C) .	XX	0	Χ	0	0	1	Χ	Χ	XX	0	0	1	0	0	0	0	0	0	0	m05

LOAD		BI	S				APO	BPO	DDA	SH	SE	MW	MARC	MSTAT	D	РС	CARR	MD	DDATA	ADDRE
SP #K	BRA	Ν	Ν		1	_	RT	RT	TA	~	LB	Ę~	LK	US	S~	E~	YE~	Ľ	E~	SS
		(2:	(2:	(2:	(5:	(8:														
	(4:0)	0)	0)	0)	3)	6)	(3:0)	(3:0)	(1:0)											
PC+1-																				
>PC,M	XXX	00	XX	10	00	01														
AR	XX	0	Χ	1	0	1	0011	0011	01	0	1	1	1	0	1	1	1	1	0	m06
MDR +																				
0 ->	XXX	00	XX	11	00	01	XXX													
SP	XX	0	Χ	1	0	1	Χ	0111	XX	0	1	1	0	0	1	1	1	0	1	m07
PC+1-																				
>PC,M	XXX	00	XX	10	00	01														
AR	XX	0	Χ	1	0	1	0011	0011	01	0	1	1	1	0	1	1	1	1	0	m08
Next(P	XXX	00	XX	00	00	00	XXX	XXX												
C)	XX	0	Χ	0	0	1	Χ	Χ	XX	0	0	1	0	0	0	0	0	0	0	m09

LOAD		BI	CO				APO	BPO	DDA	SH	SE	MW	MARC	MSTAT	LD	PC	CARR	MD	DDATA	ADDRE
LR #K	BRA	Ν	Ν	_	_	_	RT	RT	TA	?	LB	E [~]	LK	US	S~	E~	YE~	E~	E~	SS
		(2:	(2:	(2:	(5:	(8:														
	(4:0)	0)	0)	0)	3)	6)	(3:0)	(3:0)	(1:0)											
PC+1-																				
>PC,M	XXX	00	XX	10	00	01														
AR	XX	0	Χ	1	0	1	0011	0011	01	0	1	1	1	0	1	1	1	1	0	m0a
MDR +																				
0 ->	XXX	00	XX	11	00	01	XXX													
LR	XX	0	Χ	1	0	1	Χ	0001	XX	0	1	1	0	0	1	1	1	0	1	m0b
PC+1-																				
>PC,M	XXX	00	XX	10	00	01														
AR	XX	0	Χ	1	0	1	0011	0011	01	0	1	1	1	0	1	1	1	1	0	m0c
Next(P	XXX	00	$\chi\chi$	00	00	00	XXX	XXX												
C)	XX	0	Χ	0	0	1	Χ	Χ	XX	0	0	1	0	0	0	0	0	0	0	m0d

PUSH		BI	CO				APO	BPO	DDA	SH	SE	MW	MARC	MSTAT	LD	PC	CARR	MD	DDATA	ADDRE
\$K	BRA	N	N	1	I	I	RT	RT	TA	~	LB	E~	LK	US	S~	E~	YE~	E~	E~	SS
		(2:	(2:	(2:	(5:	(8:														
	(4:0)	0)	0)	0)	3)	6)	(3:0)	(3:0)	(1:0)											
LR-SP	XXX	00	XX	00	01	00														
->NOP	XX	0	Χ	1	0	1	0001	0111	XX	0	1	1	0	1	1	1	1	1	1	m0e
	0100	10	01	00	00	00														
	1	1	1	0	0	1	0000	0000	00	0	1	1	0	0	1	1	1	1	1	m0f
SP-1	XXX	00	XX	10	00	01								_					_	
->SP	XX	0	Χ	1	1	1	0111	0111	01	0	1	1	0	0	1	1	1	1	0	m10
PC+1-						١.,														
>PC,M	XXX	_	XX	10	00	01						١.						١.		
AR	XX	0	Χ	1	0	1	0011	0011	01	0	1	1	1	0	1	1	1	1	0	m11
MDR+	,,,,,,	00			00															
0-	XXX		XX	11	00	00	0000	0000	V/V	_		١,	,	0	4	,	4	_	,	10
>MAR	XX	0	X	1	0	7		0000	XX	0	1	1	1	0	1	1	1	0	1	m12
MDR+	XXX	00	XX	11	00	01	XXX	1001	VV	٥	4	1	0	0	1	1	1	_	4	12
0->X	XX	00	XX	10	00	00	Х	1001 XXX	XX	0	ı	I	U	0	ı	ı	I	0	1	m13
SP+0- >MAR	XXX	00	Х		0	1	0111	X	XX	0	1	1	4	0	1	1	1	0	1	m14
X+0-	XXX	00	XX	0 10	00	00	0111	XXX	^^	U	-	ı	ı	U	ı	-	I	U	I	11114
>MDR	XX	0	X	0	0	1	1001	X	XX	0	1	0	0	0	1	1	1	1	1	m15
PC+1-	^//	U	^	U	U	-	1001		^//	U	-	U	U	0	1		ı ı	-		11113
>PC,M	XXX	00	XX	10	00	01														
AR	XX	0	X	1	0	1	0011	0011	01	0	1	1	1	0	1	1	1	1	0	m16
Next(P	XXX		XX	00	00	00	XXX	XXX	01	-	-	<u>'</u>	'		'			- ' -		11110
C)	XX	0	X	0	0	1	X	X	XX	0	0	1	0	0	0	0	0	0	0	m17

	POP		В	CO				APO	BPO	DDA	SH	SE	MW	MARC	MSTAT	LD	РС	CARR	MD	DDATA	ADDRE
۰	\$K	BRA	Ν	Ν	1	1	1	RT	RT	TA	~	LB	E~	LK	US	S~	E~	YE~	E~	E~	SS
			(2:	(2:	(2:	(5:	(8:														
		(4:0)	0)	0)	0)	3)	6)	(3:0)	(3:0)	(1:0)											

SP-BR	XXX	00	XX	00	01	00														
->NOP	XX	0	Χ	1	0	1	0111	0101	XX	0	1	1	0	0	1	1	1	1	1	m1a
	0100	10	01	00	00	00														
	1	1	1	0	0	1	0000	0000	00	0	1	1	0	0	1	1	1	1	1	m1b
SP+0-	XXX	00	XX	10	00	00														
>MAR	XX	0	Χ	0	0	1	0111	0000	XX	0	1	1	1	0	1	1	1	0	1	m1c
MDR+	XXX	00	XX	11	00	01	XXX													
0->X	XX	0	Χ	1	0	1	Χ	1001	XX	0	1	1	0	0	1	1	1	0	1	m1d
PC+1-																				
>PC,M		00	XX	10	00	01														
AR	XX	0	Χ	1	0	1	0011	0011	01	0	1	1	1	0	1	1	1	1	0	m1e
MDR+																				
0-	XXX	00	XX	11	00	00														
>MAR	XX	0	Χ	1	0	1	0000	0000	XX	0	1	1	1	0	1	1	1	0	1	m1f
X+0-	XXX	00	XX	10	00	00		XXX												
>MDR	XX	0	Χ	0	0	1	1001	Χ	XX	0	1	0	0	0	1	1	1	1	1	m20
SP+1	XXX	00	XX	10	00	01														
->SP	XX	0	Χ	1	0	1	0111	0111	01	0	1	1	1	0	1	1	1	1	0	m21
PC+1-																				
>PC,M	XXX	00	XX	10	00	01														
AR	XX	0	Χ	1	0	1	0011	0011	01	0	1	1	1	0	1	1	1	1	0	m22
Next(P	XXX	00	XX	00	00	00	XXX	XXX												
C)	XX	0	Χ	0	0	1	Χ	Χ	XX	0	0	1	0	0	0	0	0	0	0	m23

		BI	СО				APO	BPO	DDA	SH	SE	MW	MARC	MSTAT	LD	PC	CARR	MD	DDATA	ADDRE
ADD	BRA	Ν	N	1	1	1	RT	RT	TA	?	LB	E~	LK	US	S~	E~	YE~	E~	E~	SS
		(2:	(2:	(2:	(5:	(8:														
	(4:0)	0)	0)	0)	3)	6)	(3:0)	(3:0)	(1:0)											
BR-SP	XXX	00	XX	00	01	00														
->NOP	XX	0	Χ	1	0	1	0101	0111	XX	0	1	1	0	1	1	1	1	1	1	m26
	0100	10	01	00	00	00														
	1	1	1	0	0	1	0000	0000	00	0	1	1	0	0	1	1	1	1	1	m27
SP+0-	XXX	00	XX	10	00	00														
>MAR	XX	0	Χ	0	0	1	0111	0000	XX	0	0	1	1	0	1	0	1	0	0	m28
MDR+																				
0-	XXX	00	XX		00	01	XXX					١.								•
>temp	XX	0	Х	1	0	1	Χ	1011	XX	0	1	1	0	0	1	1	1	0	1	m29
SP+1	XXX	00	XX		00	01						١.						١.		_
->SP	XX	0	X	1	0	1	0111	0111	01	0	1	1	1	0	1	1	1	1	0	m2a
BR-SP	XXX	00	XX		01	00	0404			•										01
->NOP	XX	0	X	1	0	1	0101	0111	XX	0	1	1	0	1	1	1	1	1	1	m2b
	0010	10	01	00	00	00				•										•
00.0	0	1	1	0	0	1	0000	0000	00	0	1	1	0	0	1	1	1	1	1	m2c
SP+0 -	XXX	00	XX		00	00	0444	0000	\/\/		_					•		_		0.1
>MAR	XX	0	Х	0	0	1	0111	0000	XX	0	0	1	1	0	1	0	1	0	0	m2d
MDR +	V/V/	00	VV	40		04														
temp -	XXX		XX		00	01	1011	1011	VV	0	4	4	0	0	1	4	4	_	4	O
> temp	XX	0	Χ	1	0	1	1011	1011	XX	0	1	1	0	0	ı	1	1	0	1	m2e
Temp+ 0-	XXX	00	XX	10	00	00														
>MAR	XX	0	X		0	1	1011	0000	XX	0	0	0	0	0	1	0	1	0	0	m2f
PC+1-	^^	U	^	0	U		1011	0000	^^	U	U	U	U	U	- 1	U	I	U	U	IIIZI
>PC+1-	XXX	00	XX	10	00	01														
AR	XX	0	X	10	0	1	0011	0011	01	0	1	1	1	0	1	1	1	1	0	m30
Next(P	XXX	00	XX		00	00	XXX	XXX	UI	U		'	ı	U	-	- 1	ı		U	11130
C)	XX	0	X		0	1	X	X	XX	0	0	1	0	0	0	0	0	0	0	m31

		BI	СО				APO	BPO	DDA	SH	SE	MW	MARC	MSTAT	LD	PC	CARR	MD	DDATA	ADDRE
SUB	BRA	Ν	N	1	1	1	RT	RT	TA	~	LB	E~	LK	US	S~	E~	YE~	E~	E~	SS
		(2:	(2:	(2:	(5:	(8:														
	(4:0)	0)	0)	0)	3)	6)	(3:0)	(3:0)	(1:0)											
BR-SP	XXX	00	XX	00	01	00														
->NOP	XX	0	Χ	1	0	1	0101	0111	XX	0	1	1	0	1	1	1	1	1	1	m32
	0100	10	01	00	00	00														
	1	1	1	0	0	1	0000	0000	00	0	1	1	0	0	1	1	1	1	1	m33
SP+0-	XXX	00	XX	10	00	00														
>MAR	XX	0	Χ	0	0	1	0111	0000	XX	0	0	1	1	0	1	0	1	0	0	m34
MDR+																				
0-	XXX	00	XX	11	00	01	XXX													
>temp	XX	0	Χ	1	0	1	Χ	1011	XX	0	1	1	0	0	1	1	1	0	1	m35
SP+1	XXX	00	XX	10	00	01														
->SP	XX	0	Χ	1	0	1	0111	0111	01	0	1	1	1	0	1	1	1	1	0	m36
BR-SP	XXX	00	XX	00	01	00														
->NOP	XX	0	Χ	1	0	1	0101	0111	XX	0	1	1	0	1	1	1	1	1	1	m37
	0010	10	01	00	00	00														
	0	1	1	0	0	1	0000	0000	00	0	1	1	0	0	1	1	1	1	1	m38
SP+0 -	XXX	00	XX	10	00	00														
>MAR	XX	0	Χ	0	0	1	0111	0000	XX	0	0	1	1	0	1	0	1	0	0	m39
MDR -																				
temp -	XXX	00	XX	10	01	01														
> temp	XX	0	Χ	1	0	1	1011	1011	XX	0	1	1	0	0	1	1	1	0	1	m3a
Temp+																				
0-	XXX	00	XX	10	00	00														
>MAR	XX	0	Χ	0	0	1	1011	0000	XX	0	0	0	0	0	1	0	1	0	0	m3b
PC+1-																				
>PC,M	XXX	00	XX	10	00	01														
AR	XX	0	Χ	1	0	1	0011	0011	01	0	1	1	1	0	1	1	1	1	0	m3c
Next(P	XXX	00	XX	00	00	00	XXX	XXX												
C)	XX	0	Χ	0	0	1	Χ	Χ	XX	0	0	1	0	0	0	0	0	0	0	m3d