

Instruction Project

Mnemonic: add, sub

Syntax				Operands						Program Counter									
Mnemonic Rr, Rs, Rd				None						PC = PC + 1									
15		12		11		9		8		6		5		3		2		0	
OP				Rr			Rs			Rd			-		-		-		
-	-	-	-	r	r	r	s	s	s	d	d	d	-	-	-	-	-	-	

Mnemonic: jumpeq, jumpneq, jumpgt, jumpgte, jumplt, jumplte

Syntax				Operands						Program Counter							
Mnemonic Rr, Rs, k				1 <= k <= 64						PC = PC + 1 PC = PC + k, false condition							
15				12		11		9		8		6		5		0	
OP				Rr			Rs			K							
-	-	-	-	r	r	r	s	s	s	k	k	k	k	k	k	k	

Mnemonic: addi, subi, shfl, shfr

Syntax				Operands						Program Counter					
Mnemonic Rr, Rs, k				1 <= k <= 64						PC = PC + 1					
15		12		11		9		8		6		5		0	
OP				Rr			Rd			K					
-	-	-	-	r	r	r	d	d	d	k	k	k	k	k	k

Mnemonic: st

Syntax st Rr, Rm				Operands None						Program Counter PC = PC + 1					
15		12		11		9		8		6		5		0	
OP				Rr			Rm			-					
-	-	-	-	r	r	r	m	m	m	-	-	-	-	-	-

Mnemonic: ld

Syntax				Operands						Program Counter							
ld Rm, Rr				None						PC = PC + 1							
15				12		11		9		8		6		5		0	
OP				Rr			Rm			-							
-	-	-	-	r	r	r	m	m	m	-	-	-	-	-	-	-	

Mnemonic: jump

Syntax jump k				Operands 1 <= k <= 4096								Program Counter PC = PC + 1			
15			12	11											0
OP				k											
-	-	-	-	k	k	k	k	k	k	k	k	k	k	k	k

Mnemonic: nop

Syntax nop				Operands Nop								Program Counter PC = PC + 1			
15															0
OP				-											
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Opcode	Instruction	Description
0000	nop	Processor does not perform operations on this instruction
0001	Jumpeq	Conditional flow deviation, equal to
0010	jumpneq	Conditional flow deviation, not equal to
0011	Jumpgt	Conditional flow deviation, greater than
0100	jumpgte	Conditional flow deviation, greater than or equal to
0101	Jumplt	Conditional flow deviation, less than
0110	Jumplte	Conditional flow deviation, less than or equal to
0111	jump	Unconditional flow deviation instruction "goto"
1000	add	Addition Instruction
1001	sub	Subtraction Instruction
1010	addi	Addition instruction with immediate constant
1011	subi	Subtraction instruction with immediate constant
1100	shfl	Bitwise shift – left
1101	shfr	Bitwise shift – right
1110	st	Instruction that stores a value given by a register in memory
1111	ld	Instruction that loads a memory value into a given register