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

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	Operands	Program Counter
st Rr, Rm	None	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, Rd	None	PC = PC + 1

15			12	11			9	8			6	5					0
OP				Rd				Rm				-					
-	-	-	-	d	d	d		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 None								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