

JoltCore Spark 16: Instruction Set

Instruction Name	Description	Binary	Arguments	Implmtd.?	Register #	Register bin.
ALU operations					0	000
add	Add two values together	00000	REG-ID-DEST, REG-ID1, REG-ID2		1	001
sub	Subtract two values	00001	REG-ID-DEST, REG-ID1, REG-ID2		2	010
and	Bitwise AND	00010	REG-ID-DEST, REG-ID1, REG-ID2		3	011
not	Bitwise NOT	00011	REG-ID-DEST, REG-ID, NULL		4	100
or	Bitwise OR	00100	REG-ID-DEST, REG-ID1, REG-ID2		5	101
xor	Bitwise XOR	00101	REG-ID-DEST, REG-ID1, REG-ID2		6	110
nand	Bitwise NAND	00110	REG-ID-DEST, REG-ID1, REG-ID2		7	111
nor	Bitwise NOR	00111	REG-ID-DEST, REG-ID1, REG-ID2			
lshift	Bit shift left by one	01000	REG-ID-DEST, REG-ID1, REG-ID2			
rshift	Bit shift right by one	01001	REG-ID-DEST, REG-ID1, REG-ID2			
gt	Is greater than	01010	REG-ID-DEST, REG-ID1, REG-ID2			
lt	Is less than	01011	REG-ID-DEST, REG-ID1, REG-ID2			
eq	Is equal	01100	REG-ID-DEST, REG-ID1, REG-ID2			
	reserved	01101		Reserved		
	reserved	01110		Reserved		
	reserved	01111		Reserved		
Control flow operations						
jmp	Jump to Instruction	10000	NULL, TARGET INSTRUCTION ID			
jiz	Jump if last ALU OP = zero	10001	NULL, TARGET INSTRUCTION ID			
jnz	Jump if last ALU OP != zero	10010	NULL, TARGET INSTRUCTION ID			
jic	Jump if ALU had carry	10011	NULL, TARGET INSTRUCTION ID			
jnc	Jump if ALU had no carry	10100	NULL, TARGET INSTRUCTION ID			
		10101		Reserved		
		10110		Reserved		
Storage & I/O operations						
oclk	Emit a clock signal to CLK	10111	000			
ldi	Load immed. into register	11000	REG-ID-DEST, VALUE			
ldram	Load from RAM into reg.	11001	REG-ID-DEST, RAM-ADDR			
stram	Store register into RAM	11010	REG-ID, RAM-ADDR			
rdpin	Read value from pin to reg	11011	REG-ID-DEST, REG-ID1			
wrpin	Write value from pin to reg	11100	REG-ID-DEST, REG-ID1			
		11101		Reserved		
		11110		Reserved		
halt	Stops execution	11111	000			
Command outline						
Instruction	Destination register	Further arguments (a.e. 2 registers = 6 bit) (a.e. immediate = 16 bit)				
5 bit	3 bit	Max. 16 bit min. 14 bit, max. 24 bit				