

Reference Card: Jam2000 Instructions

Encoding	Fmt	Assembly	Meaning
Arithmetic			
???z y x 1 0	R	(add Rx Ry Rz)	$Rx \leftarrow Ry + Rz$
???z y x 2 0	R	(sub Rx Ry Rz)	$Rx \leftarrow Ry - Rz$
???z y x 3 0	R	(mul Rx Ry Rz)	$Rx \leftarrow Ry \times Rz$
???z y x 4 0	R	(div Rx Ry Rz)	$Rx \leftarrow Ry \div Rz$
???z y x 5 0	R	(mod Rx Ry Rz)	$Rx \leftarrow Ry \bmod Rz$
Loads & Stores			
$\pm d_7 \dots d_2$ x 9	I	(ldi Rx $\pm d_7 \dots d_2$)	$Rx \leftarrow \pm d_7 \dots d_2$
?? 1? y x 6 0	R	(ld Rx Ry)	$Rx \leftarrow mem[Ry]$
?? 0 z y x 6 0	R	(ldx Rx Ry Rz)	$Rx \leftarrow mem[Ry + Rz]$
?? 1? y x 7 0	R	(st Rx Ry)	$mem[Ry] \leftarrow Rx$
?? 0 z y x 7 0	R	(stx Rx Ry Rz)	$mem[Ry + Rz] \leftarrow Rx$
???? y x 9 0	R	(mov Rx Ry)	$Ry \leftarrow Rx$
Control			
????? x 8 0	R	(jmpx Rx)	$PC \leftarrow Rx$
$\pm d_7 \dots d_2$? 1	I	(jmp i $\pm d_7 \dots d_2$)	$PC \leftarrow d_7 \dots d_2$
$\pm d_7 \dots d_2$ x 2	I	(jsr Rx $\pm d_7 \dots d_2$)	$Rx \leftarrow PC; PC \leftarrow d_7 \dots d_2$
$\pm d_7 \dots d_2$ x 3	I	(bez Rx $\pm d_7 \dots d_2$)	$PC \leftarrow d_7 \dots d_2$, if ($Rx = 0$)
$\pm d_7 \dots d_2$ x 4	I	(bnez Rx $\pm d_7 \dots d_2$)	$PC \leftarrow d_7 \dots d_2$, if ($Rx \neq 0$)
$\pm d_7 \dots d_2$ x 5	I	(blz Rx $\pm d_7 \dots d_2$)	$PC \leftarrow d_7 \dots d_2$, if ($Rx < 0$)
$\pm d_7 \dots d_2$ x 6	I	(blez Rx $\pm d_7 \dots d_2$)	$PC \leftarrow d_7 \dots d_2$, if ($Rx \leq 0$)
$\pm d_7 \dots d_2$ x 7	I	(bgz Rx $\pm d_7 \dots d_2$)	$PC \leftarrow d_7 \dots d_2$, if ($Rx > 0$)
$\pm d_7 \dots d_2$ x 8	I	(bgez Rx $\pm d_7 \dots d_2$)	$PC \leftarrow d_7 \dots d_2$, if ($Rx \geq 0$)
Specials			
????? 0 0 0	R	(halt)	halts the machine
???? x 1 0 0	R	(print Rx)	prints the contents of Rx
????? 2 0 0	R	(newline)	prints a newline character