

CISC 3310-TR11: MARIE Instruction Set Extended

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Five additional instructions of the MARIE architecture in Table 1. Some of these instructions introduces indirect addressing:

Table 1: MARIE's Instruction Set: Extensions

Opcode		(Mnemonic)		Meaning
Binary	Hex	Instruction	RTL	Description
0000	0	JnS X	$MBR \leftarrow PC, MAR \leftarrow X, M[MAR] \leftarrow MBR, MBR \leftarrow X, AC \leftarrow 1, AC \leftarrow AC + MBR, PC \leftarrow AC$	Store the PC at address X and jump to X + 1.
1010	A	Clear	$AC \leftarrow 0$	Put all zeros in AC.
1011	B	AddI X	$MAR \leftarrow X, MBR \leftarrow M[MAR], MAR \leftarrow MBR, MBR \leftarrow M[MAR], AC \leftarrow AC + MBR$	Add indirect: Go to address X. Use the value at X as the actual address of the data operand to add to AC.
1100	C	JumpI X	$MAR \leftarrow X, MBR \leftarrow M[MAR], PC \leftarrow MBR$	Jump indirect: Go to address X. Use the value at X as the actual address of the location to jump to.
1101	D	LoadI X	$MAR \leftarrow X, MBR \leftarrow M[MAR], MAR \leftarrow MBR, MBR \leftarrow M[MAR], AC \leftarrow MBR$	Load indirect: Go to address X. Use the value at X as the actual address of the operand to
1110	E	StoreI X	$MAR \leftarrow X, MBR \leftarrow M[MAR], MAR \leftarrow MBR, MBR \leftarrow AC, M[MAR] \leftarrow MBR$	Store indirect: Go to address X. Use the value at X as the destination address for storing the value in the accumulator