

RTI (1000) Instruction Cycle

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1000				000000000000											

Instruction Fetch

MAR $\leftarrow$ PC

PC $\leftarrow$ PC + 1

MDR $\leftarrow$ memory[MAR]

IR $\leftarrow$ MDR

Decode

IR[15:12] decoded

Evaluate Address

n/a

Operand Fetch

n/a

Execute

if (PSR[15])

Raise a privilege mode exception

/ pop the (supervisor) stack into PSR */*

MAR $\leftarrow$ R6

MDR $\leftarrow$ memory[MAR]

PSR $\leftarrow$ MDR

R6 $\leftarrow$ R6 + 1

/ pop the (supervisor) stack into PC */*

MAR $\leftarrow$ R6

MDR $\leftarrow$ memory[MAR]

PC $\leftarrow$ MDR

R6 $\leftarrow$ R6 + 1

/ reset stack pointer if switching back to user mode */*

if (PSR[15]) {

Saved.SSP $\leftarrow$ R6

R6 $\leftarrow$ Saved.USP

}

Store Result

n/a