

Spin Lock with Low Coherence Traffic

lockit: LL R2, 0(R1) ; load linked, generates no coherence traffic
BNEZ R2, lockit ; not available, keep spinning
DADDUI R2, R0, #1 ; put value 1 in R2
SC R2, 0(R1) ; store-conditional succeeds if no one
; updated the lock since the last LL
BEQZ R2, lockit ; confirm that SC succeeded, else keep trying

- If there are i processes waiting for the lock, how many bus transactions happen?

1 write by the releaser + i read-miss requests + i responses + 1 write by acquirer + 0 ($i-1$ failed SCs) + $i-1$ read-miss requests + $i-1$ responses