MODULE *oddeven*

EXTENDS *Integers*, *Naturals*, *TLC*

CONSTANTS n

VARIABLES l, cur, rs, cs, re, ce

extra definitions

$min \triangleq -2^{\{31\}}$

$max \triangleq n$

precondition $pre(x0, y0, z0, pc0)$

$G(k) \triangleq$
$\land\ l = \text{“start”} \land k \in Nat$
$\land\ (((cur = 2 * k + 1 \lor\ cur = 2 * k) \land cur < n) \lor (cur = n))$

$next1 \triangleq$
$(l = \text{“start”} \land\ \ cur < n\ \land (cur\%2 = 0))$
$\land\ \ (cur' = cur + 1 \land\ ce' = ce \land\ l' = l \land\ cs' = cs + cur + 1 \land\ re' = re \land\ rs' = rs)$

$next2 \triangleq$
$(l = \text{“start”} \land\ \ cur < n\ \land (cur\%2 \neq 0))$
$\land (cur' = cur + 1 \land\ ce' = ce + cur + 1 \land\ l' = l$
$\land\ cs' = cs + cur + 1 \land\ re' = re \land rs' = rs)$

$next3 \triangleq$
$(l = \text{“start”} \land\ cur = n) \land\ \ (rs' = cs\ \ \land\ re' = ce$
$\land\ l' = \text{“end”} \land\ cur' = cur \land cs' = cs \land ce' = ce)$

$Next \triangleq$
$(next1 \lor next2 \lor next3)$

$Init \triangleq l = \text{“start”} \land\ \ cur = 0 \land rs = 0 \land cs = 0 \land re = 0 \land ce = 0$