
BOUNDEDSEMAPHORE SHARED RESOURCE

CADT BoundedSemaphore

OPERATIONS

ACTION Init: $\mathbb{N}[i] \times \mathbb{N}[i]$

ACTION V:

ACTION P:

SEMANTICS

DOMAIN:

STATE: $BoundedSemaphore = (value : \mathbb{N} \times upperBound : \mathbb{N})$

INVARIANT: $value \geq 0 \wedge upperBound \geq value \wedge upperBound > 0$

INITIAL: true

CPRE: $v \geq 0 \wedge upperBound \geq v$

Init(v)

POST: $value = v$

CPRE: $upperBound \geq value$

V()

POST: $value = value^{in} + 1$

PRE: true

CPRE: $value > 0$

P()

POST: $value = value^{in} - 1$