
MODULE *BoundedFIFO*

Taken from “Specifying systems”

In *Linux* versions before 2.6.11, the capacity of a pipe was the same as the system page size (*e.g.*, 4096 bytes on *i386*). Since *Linux* 2.6.11, the pipe capacity is 16 pages (*i.e.*, 65,536 bytes in a system with a page size of 4096 bytes).

EXTENDS *Naturals*, *Sequences*

VARIABLES *in*, *out*, *q*

CONSTANT *Message*, *N*

ASSUME $(N \in \text{Nat}) \wedge (N > 0)$

Inner \triangleq INSTANCE *InnerFIFO* WITH *in* \leftarrow *in*, *out* \leftarrow *out*, *q* \leftarrow *q*

Init \triangleq *Inner*! *Init*

BNext \triangleq \wedge *Inner*! *Next*
 \wedge *Inner*! *BufReceive* \Rightarrow (*Len*(*q*) < *N*)

Spec \triangleq *Init* \wedge $\Box[\textit{BNext}]_{\langle \textit{in}, \textit{out}, \textit{q} \rangle}$
