

section *BufferSpec* **parents** *circus_toolkit*

| *maxbuff* : \mathbb{N}_1

channel *input, output* : \mathbb{N}

process *Buffer* $\hat{=}$ **begin**

state *BufferState* == [*buff* : seq \mathbb{N} ; *size* : $0 \dots \text{maxbuff}$ |
 size = # *buff* $\leq \text{maxbuff}$]
BufferInit == [(*BufferState*)' | *buff*' = $\langle \rangle$ \wedge *size*' = 0]
InputCmd == [$\Delta \text{BufferState}$; *x*? : \mathbb{N} | *size* < *maxbuff* \wedge
 buff' = *buff* $\frown \langle x? \rangle \wedge \text{size}' = \text{size} + 1$]
Input $\hat{=}$ (*size* < *maxbuff*) & *input*?*x* \longrightarrow (*InputCmd*)
OutputCmd == [$\Delta \text{BufferState}$ | *size* > 0 \wedge *buff*' = *tail buff* \wedge
 size' = *size* - 1]
Output $\hat{=}$ (*size* > 0) & *output*!(*head buff*) \longrightarrow (*OutputCmd*)
 • (*BufferInit*) ; (μX • (*Input* \square *Output*) ; *X*)

end