

EXTENDS *Integers*

VARIABLES *i*, *pc*, *buff*

Init $\triangleq (pc = \text{"start"}) \wedge (i = 0) \wedge (buff = 0)$

Start $\triangleq \begin{aligned} &\wedge pc = \text{"start"} \\ &\wedge i' = 1 \\ &\wedge pc' = \text{"addr1"} \\ &\wedge buff' = \text{"."} \end{aligned}$

Addr1 $\triangleq \begin{aligned} &\wedge pc = \text{"addr1"} \\ &\wedge buff = \text{"."} \\ &\wedge i' = i + 1 \\ &\wedge pc' = \text{"addr2"} \\ &\wedge buff' \in 0 \dots 16 \end{aligned}$

Addr2 $\triangleq \begin{aligned} &\wedge pc = \text{"addr1"} \\ &\wedge buff = \text{"."} \\ &\wedge i' = i + 1 \\ &\wedge pc' = \text{"func1"} \\ &\wedge buff' \in 0 \dots 16 \end{aligned}$

Func1 $\triangleq \begin{aligned} &\wedge pc = \text{"func1"} \\ &\wedge buff = \text{"."} \\ &\wedge i' = i + 1 \\ &\wedge pc' = \text{"func2"} \\ &\wedge buff' \in 0 \dots 16 \end{aligned}$

Func2 $\triangleq \begin{aligned} &\wedge pc = \text{"func2"} \\ &\wedge buff = \text{"."} \\ &\wedge i' = i + 1 \\ &\wedge pc' = \text{"data"} \\ &\wedge buff' \in 0 \dots 16 \end{aligned}$

Data $\triangleq \begin{aligned} &\wedge pc = \text{"data"} \\ &\wedge (buff \in 0 \dots 255 \vee (buff = 15 \wedge buff' = 10)) \\ &\wedge pc' = \text{"data"} \vee \text{"end"} \end{aligned}$

End $\triangleq \begin{aligned} &\wedge pc = \text{"end"} \\ &\wedge buff = 10 \end{aligned}$

Next $\triangleq Init \vee Start$

Valid $\triangleq End$

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