MODULE *ModbusState*

EXTENDS *Integers*

VARIABLES i, pc, $buff$

$Init \triangleq (pc = \text{“start”}) \land (i = 0) \land (buff = 0)$

$$
\begin{aligned}
Start \triangleq\ & \land pc = \text{“start”} \\
& \land i' = 1 \\
& \land pc' = \text{“addr1”} \\
& \land buff' = \text{“:”}
\end{aligned}
$$

$$
\begin{aligned}
Addr1 \triangleq\ & \land pc = \text{“addr1”} \\
& \land buff = \text{“:”} \\
& \land i' = i + 1 \\
& \land pc' = \text{“addr2”} \\
& \land buff' \in 0 \,..\, 16
\end{aligned}
$$

$$
\begin{aligned}
Addr2 \triangleq\ & \land pc = \text{“addr1”} \\
& \land buff = \text{“:”} \\
& \land i' = i + 1 \\
& \land pc' = \text{“func1”} \\
& \land buff' \in 0 \,..\, 16
\end{aligned}
$$

$$
\begin{aligned}
Func1 \triangleq\ & \land pc = \text{“func1”} \\
& \land buff = \text{“:”} \\
& \land i' = i + 1 \\
& \land pc' = \text{“func2”} \\
& \land buff' \in 0 \,..\, 16
\end{aligned}
$$

$$
\begin{aligned}
Func2 \triangleq\ & \land pc = \text{“func2”} \\
& \land buff = \text{“:”} \\
& \land i' = i + 1 \\
& \land pc' = \text{“data”} \\
& \land buff' \in 0 \,..\, 16
\end{aligned}
$$

$$
\begin{aligned}
Data \triangleq\ & \land pc = \text{“data”} \\
& \land (buff \in 0 \,..\, 255 \lor (buff = 15 \land buff' = 10)) \\
& \land pc' = \text{“data”} \lor \text{“end”}
\end{aligned}
$$

$$
\begin{aligned}
End \triangleq\ & \land pc = \text{“end”} \\
& \land buff = 10
\end{aligned}
$$

$Next \triangleq Init \lor Start$

$Valid \triangleq End$

* Modification History

* Last modified *Mon Jan* 22 12:01:47 *EST* 2018 by *SabraouM*
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