

MODULE <i>XJupiterImplCJupiter</i>	
EXTENDS <i>XJupiterExtended</i>	<i>XJupiter</i> extended with <i>JupiterSerial</i>
VARIABLES	
<i>op2ss</i> ,	a function mapping an operation (identifier)
	to the 2D state space created during it is transformed
<i>c2ssX</i>	<i>c2ssX</i> [<i>c</i>]: redundant (<i>eXtra</i>) 2D state space maintained for client <i>c</i> ∈ <i>Client</i>
<i>varsImpl</i> $\triangleq \langle varsEx, op2ss, c2ssX \rangle$	
<i>TypeOKImpl</i> \triangleq	
$\wedge TypeOKEx$	
$\wedge \forall oid \in DOMAIN\ op2ss : oid \in Oid \wedge IsSS(op2ss[oid])$	
$\wedge \forall c \in Client : IsSS(c2ssX[c])$	
<i>InitImpl</i> \triangleq	
$\wedge InitEx$	
$\wedge op2ss = \langle \rangle$	
$\wedge c2ssX = [c \in Client \mapsto EmptySS]$	
<i>DoImpl</i> (<i>c</i>) \triangleq	
$\wedge DoEx(c)$	
$\wedge UNCHANGED \langle op2ss, c2ssX \rangle$	
<i>RevImpl</i> (<i>c</i>) \triangleq	
$\wedge RevEx(c)$	
$\wedge LET\ cop \triangleq Head(cincoming[c])$	
$IN\ c2ssX' = [c2ssX\ EXCEPT\ ![c] = @ \oplus op2ss[cop.oid]]$	
$\wedge UNCHANGED\ op2ss$	
<i>SRevImpl</i> \triangleq	
$\wedge SRevEx$	
$\wedge LET\ cop \triangleq Head(sincoming)$	
$c \triangleq ClientOf(cop)$	
$xform \triangleq xForm(NextEdge, Server, cop, s2ss[c])$	
$IN\ op2ss' = op2ss @@ cop.oid :> xform.xss$	
$\wedge UNCHANGED\ c2ssX$	
<i>NextImpl</i> \triangleq	
$\vee \exists c \in Client : DoImpl(c) \vee RevImpl(c)$	
$\vee SRevImpl$	
<i>FairnessImpl</i> \triangleq	
$WF_{varsImpl}(SRevImpl \vee \exists c \in Client : RevImpl(c))$	
<i>SpecImpl</i> $\triangleq InitImpl \wedge \Box[NextImpl]_{varsImpl} \wedge FairnessImpl$	

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CJ  $\triangleq$  INSTANCE CJupiter
    WITH cincoming  $\leftarrow$  cincomingCJ, sincoming needs no substitution
    css  $\leftarrow [r \in \textit{Replica} \mapsto \text{IF } r = \textit{Server}$ 
        THEN SetReduce( $\oplus$ , Range(s2ss), EmptySS)
        ELSE c2ss[r]  $\oplus$  c2ssX[r]]

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THEOREM *SpecImpl* \Rightarrow *CJ!Spec*

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\ * Modification History
\ * Last modified Tue Jan 29 13:50:03 CST 2019 by anonymous
\ * Created Fri Oct 26 15:00:19 CST 2018 by anonymous

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