MACHINE m1
REFINES m0
SEES c0
VARIABLES

wait
process
cs
clk
t1
t2

INVARIANTS

inv1: $clk \in \mathbb{N}$
inv2: $t1 \in PROCESS \pfun \mathbb{N}$
inv3: $t2 \in PROCESS \pfun \mathbb{N}$
inv4: $\forall p \cdot p \in dom(t1) \Rightarrow 0 \leq t1(p) \land t1(p) \leq clk$
inv5: $\forall p \cdot p \in dom(t2) \Rightarrow 0 \leq t2(p) \land t2(p) \leq clk$
inv8: $\forall p \cdot (p \in wait \land p \in dom(t1)) \Rightarrow clk - t1(p) \leq ddl1$
inv9: $\forall p \cdot (p \in dom(t1) \land p \in dom(t2) \land t2(p) \geq t1(p)) \Rightarrow t2(p) - t1(p) \leq ddl1$
deadline(t1,t2,ddl1)

EVENTS

Initialisation ⟨extended⟩
begin
act1: $wait := \varnothing$
act2: $process := \varnothing$
act3: $cs := \varnothing$
act4: $clk := 0$
act5: $t1 := \varnothing$
act6: $t2 := \varnothing$
end

Event wish ⟨ordinary⟩ $\widehat{=}$
extends wish
any
pro
where
grd1: $pro \in PROCESS \setminus wait$
grd2: $pro \in PROCESS \setminus process$
then
act1: $wait := wait \cup \{pro\}$
act2: $t1(pro) := clk$
end

Event enter ⟨ordinary⟩ $\widehat{=}$
extends enter
any
pro
i
where
grd1: $pro \in wait$
grd2: $i \in 1 \mathinner{..} csnum$
grd3: $i \notin ran(cs)$
then
act1: $wait := wait \setminus \{pro\}$
act2: $process := process \cup \{pro\}$
act3: $cs(pro) := i$
act4: $t2(pro) := clk$
end

Event leave ⟨ordinary⟩ $\widehat{=}$

extends leave

any

pro

where

grd1: $pro \in process$

then

act1: $process := process \setminus \{pro\}$

act2: $cs := \{pro\} \lhd cs$

end

Event tick ⟨ordinary⟩ $\widehat{=}$

when

grd1: $\forall p \cdot (p \in wait \land p \in dom(t1)) \Rightarrow clk + 1 - t1(p) \leq ddl1$

then

act1: $clk := clk + 1$

end

END