

<p>An Event-B Specification of Display999 Creation Date: 7Mar2013 @ 10:23:48 AM</p>

MACHINE Display999

REFINES C0

SEES ValMax999

VARIABLES

u

d

c

INVARIANTS

inv1 : $u \in 0 \dots 9$

inv2 : $d \in 0 \dots 9$

inv3 : $c \in 0 \dots 9$

inv4 : $i = 100 * c + 10 * d + u$

PDLF1 : $i < maxi \Rightarrow (u < 9 \vee (u = 9 \wedge d < 9)) \vee (u = 9 \wedge d = 9 \wedge c < 9)$

PDLF2 : $i > 0 \Rightarrow (u > 0 \vee d > 0 \vee c > 0)$

EVENTS

Initialisation

begin

act2 : $u := 0$

act3 : $d := 0$

act4 : $c := 0$

end

Event *incru* $\hat{=}$

refines *incr*

when

grd1 : $u < 9$

then

act1 : $u := u + 1$

end

Event *reset* $\hat{=}$

refines *reset*

when

grd2 : $u > 0 \vee d > 0 \vee c > 0$

then

act2 : $c, d, u := 0, 0, 0$

end

Event *incrd* $\hat{=}$

refines *incr*

when

grd1 : $u = 9$

grd2 : $d < 9$

then

act1 : $d, u := d + 1, 0$

end

Event *incrc* $\hat{=}$

refines *incr*

when

```
      grd1 :  $u = 9$ 
      grd2 :  $d = 9$ 
      grd3 :  $c < 9$ 
    then
      act1 :  $c, d, u := c + 1, 0, 0$ 
    end
  END
```