**MACHINE**

|  |
| --- |
| **Fibonacci** |

**SEES**

|  |
| --- |
| **C2** |

**VARIABLES**

|  |
| --- |
| a |

|  |
| --- |
| b |

|  |
| --- |
| c |

|  |
| --- |
| n |

|  |
| --- |
| counter |

|  |
| --- |
| state |

|  |
| --- |
| flag |

**INVARIANTS**

|  |  |
| --- | --- |
| inv1   : | a ∈ ℕ |

|  |  |
| --- | --- |
| inv2   : | b ∈ ℕ |

|  |  |
| --- | --- |
| inv3   : | c ∈ ℕ |

|  |  |
| --- | --- |
| inv4   : | state ∈ S |

|  |  |
| --- | --- |
| inv5   : | n ∈ ℕ |

|  |  |
| --- | --- |
| inv6   : | counter ∈ ℕ |

|  |  |
| --- | --- |
| inv7   : | flag∈{0,1} |

**EVENTS**

|  |
| --- |
| **INITIALISATION   ≙** |

**STATUS**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | **ordinary** |   **BEGIN**   |  |  | | --- | --- | | act1   : | a ≔ 1 |  |  |  | | --- | --- | | act2   : | b ≔ 1 |  |  |  | | --- | --- | | act3   : | c ≔ 2 |  |  |  | | --- | --- | | act4   : | state ≔ init |  |  |  | | --- | --- | | act5   : | n ≔ 1000 |  |  |  | | --- | --- | | act6   : | counter ≔ 2 |  |  |  | | --- | --- | | act7   : | flag≔0 |   **END**   |  | | --- | | **evt1   ≙** |   **STATUS**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | **ordinary** |   **WHEN**   |  |  | | --- | --- | | grd1   : | counter < n |  |  |  | | --- | --- | | grd2   : | flag = 0 |   **THEN**   |  |  | | --- | --- | | act3   : | c ≔ a + b |  |  |  | | --- | --- | | act4   : | state ≔ interm |  |  |  | | --- | --- | | act5   : | counter ≔ counter + 1 |  |  |  | | --- | --- | | act6   : | flag≔1 |   **END**   |  | | --- | | **evt2   ≙** |   **STATUS**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | **ordinary** |   **WHEN**   |  |  | | --- | --- | | grd1   : | counter = n |  |  |  | | --- | --- | | grd2   : | state ∈ {init, interm} |   **THEN**   |  |  | | --- | --- | | act1   : | state ≔ final |   **END**   |  | | --- | | **evt3   ≙** |   **STATUS**   |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | **ordinary** |   **WHEN**   |  |  | | --- | --- | | grd1   : | state = interm |  |  |  | | --- | --- | | grd2   : | flag = 1 |   **THEN**   |  |  | | --- | --- | | act1   : | a≔b |  |  |  | | --- | --- | | act2   : | b≔c |  |  |  | | --- | --- | | act3   : | flag≔0 |   **END**  **END** | | | |