

# Core state

SD026 | Posted on April 2, 2021 | Updated on May 27, 2025



**Benoît STEINMANN**

Software Team Leader

imperix • in

---

## Table of Contents

- [Simulink block](#)
  - [Signal specification](#)
- [PLECS block](#)
  - [Signal specification](#)
- [C++ functions](#)

The Core state block returns the state of the target:

- **0 = FAULT:** The target received an error signal and waits for a user acknowledgment to switch back to BLOCKED state (PWM disabled)
- **1 = BLOCKED:** PWM disabled, the target waits for the enable command to switch to OPERATING and activate its PWM outputs.
- **2 = OPERATING:** The PWM outputs are enabled.

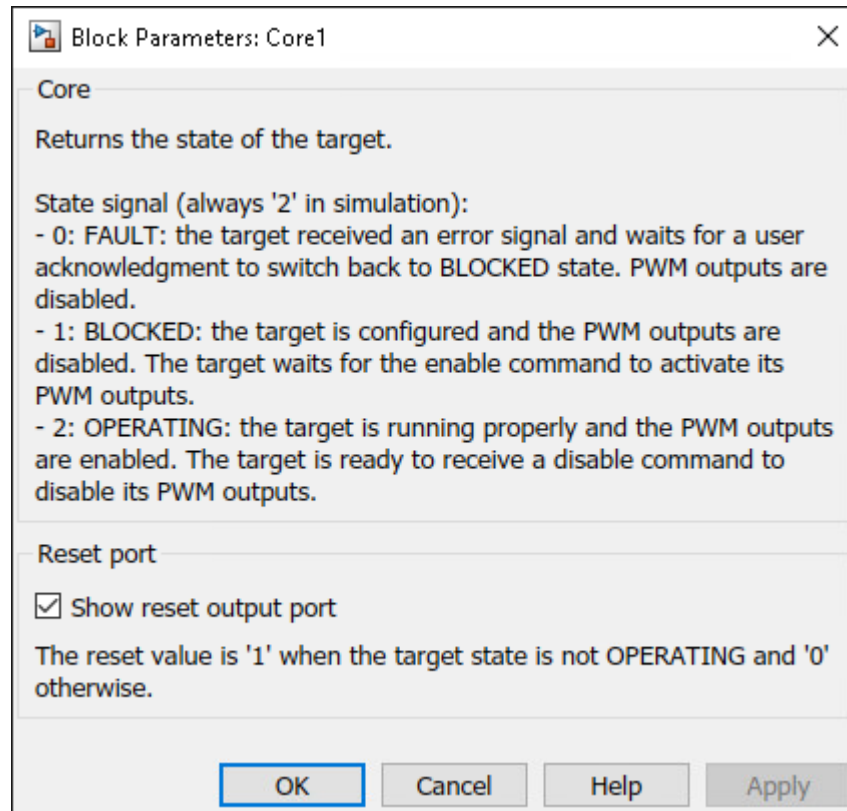
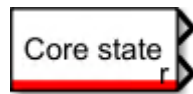
The block also provides a second signal called “reset” that can be wired to the external reset input of PID controllers to keep the integrator at reset when the target is not in OPERATING state.

## Simulink block

### Signal specification

- The first output port returns the core state of the B-Box/B-Board. (0=FAULT, 1=BLOCKED, 2=OPERATING)  
In simulation the output port `s` always returns the value 2 (OPERATING).

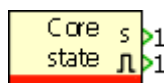
- The second output port *r* provides the reset signal.  
reset = 1 when *s*=FAULT or *s*=BLOCKED  
reset= 0 when *s*=OPERATING  
In simulation, the reset output port always returns the value 0

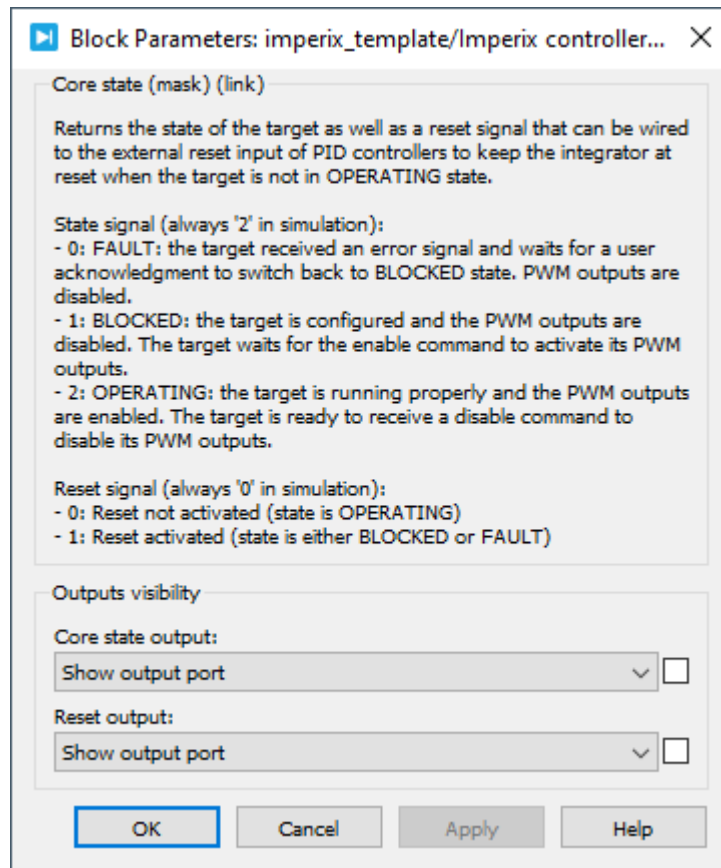


## PLECS block

### Signal specification

- The output port *s* returns the core state of the B-Box/B-Board. (0=FAULT, 1=BLOCKED, 2=OPERATING)  
In simulation the output port *s* always returns the value 2 (OPERATING).
- The second output port provides the reset signal.  
reset = 1 when *s*=FAULT or *s*=BLOCKED  
reset= 0 when *s*=OPERATING  
In simulation, the reset output port always returns the value 0





## C++ functions

`GetCoreState` — Return the state of the target

```
tCoreState GetCoreState();
```

Code language: C++ (cpp)

This function returns the current state of the core.

### Return value

- `tCoreState`: Current state of the core. The following states can be returned

```
typedef enum {
    FAULT = 0,
    BLOCKED = 1,
    OPERATING = 2
} tCoreState;
```

Code language: C++ (cpp)

`int reset = (GetCoreState() < 2)` — PID reset signal code snippet

```
int reset = (GetCoreState() < 2);
```

Code language: C++ (cpp)

This code snippet shows how a reset signal can be created.

### Return value

- 0: Reset not activated. This value is returned when the state is OPERATING

- 1: Reset activated. This value is returned when the state is not OPERATING