

# PI (FreeRTOS) & PCP (Revision)

Winter 2014

# Priority Inheritance

From class Notes:

- While  $J_{low}$  is holding any resource: raise its priority to the highest priority of any job requesting any resource held by  $J_{low}$
- at  $t'$ : priority of  $J_{low}$  falls to the higher of (1) its original priority, or (2) the priority of the highest job requesting one of the resources still held by  $J_{low}$

# Priority Inheritance in FreeRTOS

- Disinherit to original priority as soon as a mutex is released

VS.

- fall to the higher of (1) its original priority, or (2) the priority of the highest job requesting one of the resources still held by  $J_{low}$



# PCP Inheritance Rule

From class Notes:

- While  $J_{low}$  is holding any resource: raise its priority to the highest priority of any job requesting any resource held by  $J_{low}$
- Does not account for Ceiling Blocking!
  - Where a job cannot obtain a free resource because the job's priority is not high enough
- Revised wording: While  $J_{low}$  is holding any resource: raise its priority to the highest priority of any job **blocked because of** any resource held by  $J_{low}$

# PCP (Dis)Inheritance Rule

From class Notes:

- $J_{low}$  executes at inherited priority until  $t'$  when it releases every resource whose priority ceiling is greater or equal to the inherited priority
  - at  $t'$ : priority of  $J_{low}$  falls to the higher of (1) its original priority, or (2) the priority of the highest job requesting one of the resources still held by  $J_{low}$
- Just a copy from the Priority Inheritance slide  
... what about Ceiling Blocking? ☹️

# PCP (Dis)Inheritance Rule

Revised wording:

- $J_{low}$  executes at inherited priority until  $t'$  when it releases every resource whose priority ceiling is greater or equal to the inherited priority
- at  $t'$ : priority of  $J_{low}$  falls to the higher of (1) its original priority, or (2) the priority of the highest job **blocked because of** any resource still held by  $J_{low}$