

caller 59> long_ones_print:demo_revise(4,16,0.7). ← original function call in PID 185

1 Worker 1: <0.251.0>
2 Worker 2: <0.252.0>
3 Worker 3: <0.253.0>
4 Worker 4: <0.254.0>

worker PIDs

1 <0.251.0>: leaf1()
List: [1,1,1,0]
Return: {3, {1,3,4}, 0, ok}
2 <0.252.0>: leaf1()
List: [0,1,1,1]
Return: {0, {2,3,4}, 3, ok}
3 <0.253.0>: leaf1()
List: [1,1,1,1]
Return: {4, {1,4,4}, 4, ok}
4 <0.254.0>: leaf1()
List: [0,1,0,1]
Return: {0, {2,1,4}, 1, ok}

ones at left
index of start of longest sequence
length of longest sequence
length of whole list
ones at right
dummy

local calculation on each worker

1 <0.251.0>:combine()
Left: {3, {1,3,4}, 0, ok}
Right: {0, {2,3,4}, 3, ok}
Combined: {3, {1,3,8}, 3, ok}
3 <0.253.0>:combine()
Left: {4, {1,4,4}, 4, ok}
Right: {0, {2,1,4}, 1, ok}
Combined: {4, {1,4,8}, 1, ok}
1 <0.251.0>:combine()
Left: {3, {1,3,8}, 3, ok}
Right: {4, {1,4,8}, 1, ok}
Combined: {3, {6,7,16}, 1, ok}

left child
right child
passed upward

upward pass thru tree

caller <0.185.0>: root_scan()
In: {3, {6,7,16}, 1, ok}
Out: {{6,7}, {0, {1,0,0}, 0, 6}}

tuple to initialize downward pass thru tree
return tuple of reduce portion of scan

after scan completes

Original: [1,1,1,0,0,1,1,1,1,1,1,0,1,0,1]
Parallel: {6,7}
Serial: [1,1,1,0,0,ok,ok,ok,ok,ok,ok,ok,0,1,0,1]

1 <0.251.0>:combine()
Left: {0, {1,0,0}, 0, 6}
Right: {3, {1,3,8}, 3, ok}
Combined: {3, {1,3,8}, 3, 6}
1 <0.251.0>:combine()
Left: {0, {1,0,0}, 0, 6}
Right: {3, {1,3,4}, 0, ok}
Combined: {3, {1,3,4}, 0, 6}
3 <0.253.0>:combine()
Left: {3, {1,3,8}, 3, 6}
Right: {4, {1,4,4}, 4, ok}
Combined: {3, {6,7,12}, 7, 6}

everything to the left of left child
left child
everything to the left of right child
passed down to left child
passed down to right child
index of start of longest sequence
length of list to the left

downward pass thru tree

caller → {6,7}
1 <0.251.0>: leaf2() in or after
List: [1,1,1,0]
In: {0, {1,0,0}, 0, 6}
NewValue: ok

return value of call 59> (top of page)

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Out: [1,1,1,0]
3 <0.253.0>: leaf2() left continuing
List: [1,1,1,1]
In: {3, {1,3,8}, 3, 6}
NewValue: ok
Out: [ok,ok,ok,ok]
2 <0.252.0>: leaf2() in or after
List: [0,1,1,1]
In: {3, {1,3,4}, 0, 6}
NewValue: ok
Out: [0,ok,ok,ok]
4 <0.254.0>: leaf2() left continuing
List: [0,1,0,1]
In: {3, {6,7,12}, 7, 6}
NewValue: ok
Out: [0,1,0,1]
60>

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index of start of longest sequence
length of lists to the left of local sequence
ignored

local production of scan results at each worker