Homework 2 Report

Yige Hu and Zhiting Zhu

1   P1

1: **function** REC_PSUM(a, x_0, b, n)

2:     **if** (n == 1) **then**
3:         $s(0) = x_0; return; end;$
4:     **end if**

5:     $x = zeros(n/2, 1);$
6:     $a\_new = zeros(n/2 - 1, 1);$
7:     $x(0) = x_0;$
8:     **parfor** $i = 1 : n$ **do**
9:         $x(i) = b(i);$
10:     **end parfor**

11:     **parfor** $i = 0 : n/2 - 1$ **do**
12:         $y(i) = x(2 * i) * a(2 * i + 1) + x(2 * i + 1);$
13:         **if** (i != 0) **then**
14:             $a\_new(i) = a(2 * i) * a(2 * i + 1);$
15:         **end if**
16:     **end parfor**

17:     $c =$ REC_PSUM$(a\_new, y(0), y[1 : n/2 - 1], n/2)$;

18:     $s(0) = x_0;$
19:     **parfor** $i = 1 : n - 1$ **do**
20:         **if** isOdd(i) **then**
21:             $s(i) = c(i/2);$
22:         **else**
23:             $s(i) = c((i - 1)/2) * a(i) + x(i);$
24:         **end if**
25:     **end parfor**
26: **end function**

2   P2

3   P3