**Lab 5**

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| **Lab Pair** | **Hostnames** | **Lab Pair** | **Hostnames** |
| Daekoon  Zongran | soctf-pdc-001  soctf-pdc-009 | Wei Zhang  Ellie | soctf-pdc-006  soctf-pdc-014 |
| Terence  Sharadh  Likai | soctf-pdc-002  soctf-pdc-010 | Daniel  Lung Sin | soctf-pdc-007  soctf-pdc-015 |
| Tianhang  Tze Guang | soctf-pdc-003  soctf-pdc-011 | FFA (node 8 may be down) | soctf-pdc-008  soctf-pdc-016 |
| Jun Hui  Ewald | soctf-pdc-004  soctf-pdc-012 | FFA | soctf-pdc-018  soctf-pdc-020 |
| Sheu Xiang  Jonas | soctf-pdc-005  soctf-pdc-013 | FFA (node 20 is down) | soctf-pdc-019  soctf-pdc-021 |

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| **Announcements (from Prof/TA):**  If you have not attempted last week’s introductory lab to OpenMPI, please do so instead of this week’s content (which follows up on collective communication operations in OpenMPI). |
| If you have questions: post your question below as follows (so we can join your discussion room):  **[Room X] I need help with <...>?**  [alternatively, you can request for help in Zoom under **Breakout Rooms > Ask for Help**] |
| For ex3, why are some values -2? I know that those are nodes at the edges, but is there a specific reason why the nbr or inbuf are -2?    In cart.c, the 2D grid is not cyclic along any dimension (periods is {0, 0}). Therefore, for MPI processes at the edge of the grid, MPI will return MPI\_PROC\_NULL to denote no such neighbour exists, which is implemented internally as the value -2. Invoking a send/recv with MPI\_PROC\_NULL just returns itself, so the value ends up being -2 as well. If you change periods to {1, 1}, you shouldn’t observe this. :) |

**Lab 4**

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| **Lab Pair** | **Hostnames** | **Lab Pair** | **Hostnames** |
| Daekoon  Zongran | soctf-pdc-001  soctf-pdc-009 | Wei Zhang  Ellie | soctf-pdc-006  soctf-pdc-014 |
| Bobbie  Terence  Sharadh  Likai | soctf-pdc-002  soctf-pdc-010 | Daniel  Lung Sin | soctf-pdc-007  soctf-pdc-015 |
| Tianhang  Tze Guang | soctf-pdc-003  soctf-pdc-011 | FFA | soctf-pdc-008  soctf-pdc-016 |
| Jun Hui  Ewald | soctf-pdc-004  soctf-pdc-012 | FFA | soctf-pdc-018  soctf-pdc-020 |
| Sheu Xiang  Jonas | soctf-pdc-005  soctf-pdc-013 | FFA (node 20 is down) | soctf-pdc-019  soctf-pdc-021 |

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| **Announcements (from Prof/TA):**  Please set up your SSH keys for the machine you’re working off if you have not done so already.  [4:45PM]  If you run a program with mpirun and it *appears to stall* in the terminal, check if: (1) you have copied your SSH key to the remote node and (2) you have copied the executable to the remote node. **Otherwise, this indicates you encrypted your SSH key with a password (passphrase)**.  To fix this, run  $ eval $(ssh-agent)  $ ssh <remote node> // type password - will unlock the key for this session  Then try again. |
| If you have questions: post your question below as follows (so we can join your discussion room):  **[Room X] I need help with <...>?**  [alternatively, you can request for help in Zoom under **Breakout Rooms > Ask for Help**] |
| Seg fault for the mm-mpi.c? Do I have to fix it?  Wait, it is conditional? Yup all the time. :( Strange, only happens on i7. Xeon runs it fine. All fail yo. 1 thread = divide by zero exception, > 1 thread = seg fault.  Combined 14 threads work fine tho:/ RIP :;;;) guess will call it a day  A: Does this happen all the time? Try with different number of processes for now. We’ll fix it, error seems to occur for less than 6 processes. |

**Lab 3**

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| **Lab Pair** | **Hostnames** | **Lab Pair** | **Hostnames** |
| Daekoon  Zongran | **xgpc5** | Wei Zhang  Ellie | **xgpf5** |
| Bobbie, Likai  Guang Jun | **xgpc6** | Daniel  Lung Sin | **xgpf6** |
| Tianhang  Tze Guang | **xgpc7** | Sharadh  Suyash | **xgpf7** |
| Jun Hui  Ewald | **xgpc8** |  | **xgpf8** |
| Sheu Xiang  Siyu | **xgpc9** |  | **xgpf9** |

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| **Announcements (from Prof/TA):**  [5:10PM]  Will clean up the typos and issue an updated set of slides tomorrow evening.  [5:40PM]  For Exercise 10, you should observe that the first print statement appears to always print 32, even though this should not be the case. Try adding a \_\_nanosleep(<time>) statement to delay the thread that prints, and observe what happens.  [Post-hoc]  If you are getting “Connected closed”, please proceed to <https://mysoc.nus.edu.sg> (login with your SoC account), under General eServices (dropdown menu) > My SoC account > Login again (LOL) > My SoC resources (left menu) > Enable “SoC compute cluster” |
| If you have questions: post your question below as follows (so we can join your discussion room):  **[Room X] I need help with <...>?**  [alternatively, you can request for help in Zoom under **Breakout Rooms > Ask for Help**] |
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**Lab 2**

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| **Lab Pair** | **Hostnames** | **Lab Pair** | **Hostnames** |
| Daekoon  Zongran | soctf-pdc-001  soctf-pdc-009 | Wei Zhang  Ellie | soctf-pdc-006  soctf-pdc-014 |
| Bobbie  Terence | soctf-pdc-002  soctf-pdc-010 | Daniel  Lung Sin | soctf-pdc-007  soctf-pdc-015 |
| Tianhang  Tze Guang | soctf-pdc-003  soctf-pdc-011 | Sharadh  Suyash | soctf-pdc-008  soctf-pdc-016 |
| Jun Hui  Ewald | soctf-pdc-004  soctf-pdc-012 | Likai  Siyu | soctf-pdc-018  soctf-pdc-020 |
| Sheu Xiang  Jonas | soctf-pdc-005  soctf-pdc-013 | Do not use  >:( | soctf-pdc-019  soctf-pdc-021 |

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| **Announcements (from Prof/TA):**  [5:15PM]  Please profile the program only on the lab machines and not on your personal laptops/PC.  [5:18PM]  For ex5, modify B to layout its elements in column-major order (if you want to experiment, you can try A, B both in row-major only or column-major only layouts), i.e. your matrix B in your program should be the **transpose of B** instead when represented in column-major order. (You will need to modify the indexes in the multiplication in the thrice-nested for loop.)    [5:20PM]  For ex4, you only need to compute the IPC and MFLOPS for mm-omp.c  [5:30PM]  If you want to use certain compiler optimisation flags when you compile your program, apply it to both mm-omp.c and mm-omp-col.c |
| If you have questions: post your question below as follows (so we can join your discussion room):  **[Room X] I need help with <...>?**  [alternatively, you can request for help in Zoom under **Breakout Rooms > Ask for Help**] |
| So for exercise 5, we will need to transpose the matrices A and B to column major, instead of assuming that they were generated in column major order?  Only transpose matrix B to column-major. Elements in matrix A are accessed in row-wise fashion, thus there is no need to transpose it |
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**Lab 1**

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| **Announcements (from Prof/TA):** |
| If you have questions: post your question below as follows (so we can join your discussion room):  **[Room X] I need help with <...>?**  [alternatively, you can request for help in Zoom under **Breakout Rooms > Ask for Help**] |
| Q: What should I submit for the lab write-up?  A: Everyone should make a submission (due this Fri 2pm) with your code for ex7, ex8 and a text file for your ex9 comments. It is OK if you submit the same code for ex7 and ex8 as your lab partner - just do the write-up for ex9 independently. |
| Q: Ex7 template code declares producer\_buffer as an int. Does that mean anything or should it actually be an array of 10 ints?  A: This should be an integer array - apologies for the error in the template! |
| Q: Exercise 4 writes that “Although the threads are synchronized, you may still see a wrong final result”. Does this mean there is a chance for global\_counter final value to be something other than 10, even after we perform pthread\_join?  A: There is an errata with this - please amend the sentence to “**The threads are not synchronized, and thus you** see a wrong final result.” |
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