Threading the application LAB # 3 (Using Thread Profiler)

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- 1. Compiling and running PrimeOpenMP.exe
 - a. The scaling of PrimeOpenMPSolution-1 is low compared to theoretical scaling and is unacceptable. We need to use Thread Profiler to analyze the performance issue.

b.Open VTune and create a new activity. In "New Activity" dialog choose "advance activity creation"

New Activi	ity				? 🛛
Select one of Category:	of the following to help you cru Analyzer Projects Performance Analysis Wizard te Setup Wizard Monitor Wizard og Wizard oph Wizard ed Activity Configuration	eate an Actir	vity. Manually configure an Activity using the Activity Configuration dialog box. You can select the data collectors and the application and modules you wish to analyze, change the default configuration, and run the Activity to collect performance data.		Cancel Help
			J	~	

c. In "Advance Activity Creation" chose "Thread Profiler (Windows* API)" as data collector.

Save
Copy Remove
on: 20 second(s) 🗖 Start with data collection pa

d. In "Applicatin/Module Profiles" choose "new" and fill the entries as given below.

Application/Module Profile Configuration
General
Application to Launch <u>F</u> ilename:
C:\ThreadingClassIDF\PrimeOpenMP\PrimeOpenMPSolution-1.exe
Add to Modules of Interest List
C:\ThreadingClassIDF\PrimeOpenMP\
Command line arguments:
1 1000000 Advanced
System on which to launch application: Icocalhost
Add to Modules of Interest List
Modules of Interest
Files:
C:\ThreadingClassIDF\PrimeOpenMP\PrimeOpenMPSolution-1.exe Name: PrimeOpenMPSolution-1
OK Cancel Apply Help

e. Click OK.

f. Again	in "Advance	Activity	configuration"	dialog	select OK.
n ngam.	In The value	<i>i</i> ictivity	configuration	unulog	select OIX.

<u>D</u> ata Collectors:		Application/Module Profiles:	_
Thread Profiler (Windows* AF	<u>N</u> ew	✓ PrimeUpenMPSolution-1	Ne <u>w</u>
	<u>C</u> onfigure		Configure
	<u>S</u> et Master		<u>L</u> oad
	а		Sa <u>v</u> e
Copy <u>R</u> emove		Copy Remove	
im <u>e</u> : Activity4	D <u>u</u> ration:	20 second(s) 🗖 Start with d	ata collection pau:
fint Add "New" data collectors to cust	omize the data t	hat is collected when running the Ar	stivitu Optionallu.
add "New" application/module pro	files to define th	e applications/modules that you wis	h to launch/profile

g.Run the activity.

h. We get Thread Profile view as below



j. Zoom the view by 1000x.



k.Right click on the yellow edge :

🔀 Map Source File			? 🔀
Cannot find the following sou	rce file:		
f:\vs70builds\3077\vc\crtbl	d\crt\src\mlock	C	
Choose file from a different lo	cation:		
Add the directory to the c	lirectories searc	h list/path	
OK	Skip	Skip Always	Help

- l. Click skip
- m. You get the call stack. Follow the call stack and locate the first function that is in your application
- n. You will see this is "printf()" called from ShowProgress().
- o. Fix the ShowProgress() to update only 10 time in application life time of the application.
- 2. The modified program is given in PrimeOpenMPSolution-2.cpp.
- 3. Build and run the application the application.
- 4. Again run the Thread Profiler.
- 5. View the timeline view

- 6. Record the number of primes found7. Record the run time
- 8. Calculate the scaling factor achieved
 9. Compare it with theoretical scaling.