































		_ 1
submit-c 165% mpiexec -np 16 ./first	submit-c 166% mpiexec -np 16 ./first	] '
Welcome from Rank 13	Welcome from Rank 1	
Welcome from Rank 15	Welcome from Rank 5	
Welcome from Rank 3	Welcome from Rank 7	
Welcome from Rank 7	Welcome from Rank 9	
Welcome from Rank 5	Welcome from Rank 11	
Welcome from Rank 8	Welcome from Rank 13	
Welcome from Rank 9	Welcome from Rank 15	
Welcome from Rank 11	Rank 0 says that we have a Communicator of size 16	
Rank 0 says that we have a Communicator of size 16	Welcome from Rank 2	
Welcome from Rank 1	Welcome from Rank 3	
Welcome from Rank 12	Welcome from Rank 4	
Welcome from Rank 14	Welcome from Rank 6	
Welcome from Rank 6	Welcome from Rank 8	
Welcome from Rank 2	Welcome from Rank 12	
Welcome from Rank 10	Welcome from Rank 14	
Welcome from Rank 4 Welcome from Rank 10		
		_
submit-c 167% mpiexec -np 16 ./first	submit-c 168% mpiexec -np 16 ./first	7
Welcome from Rank 9	Welcome from Rank 13	
Welcome from Rank 11	Welcome from Rank 15	
Welcome from Rank 13	Welcome from Rank 7	
Welcome from Rank 7 Welcome from Rank 3		
Welcome from Rank 1	Welcome from Rank 5	
Welcome from Rank 3	Welcome from Rank 9	
Welcome from Rank 10	Welcome from Rank 11	
Welcome from Rank 15 Welcome from Rank 1		
Welcome from Rank 4	Welcome from Rank 12	
Welcome from Rank 5	Welcome from Rank 14	
Rank 0 says that we have a Communicator of size 16	Welcome from Rank 4	
Welcome from Rank 2	Welcome from Rank 2	
Welcome from Rank 6	Rank 0 says that we have a Communicator of size 16	
Welcome from Rank 8	Welcome from Rank 8	
Welcome from Rank 14	Welcome from Rank 10	
Welcome from Rank 12	Welcome from Rank 6	
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	heat.cpp, I	32
#include <stdio.h></stdio.h>		]
#include <math.n> #include <mpi.h></mpi.h></math.n>		
const float RHO = 8050.;		
const float C = 0.466;		
const float K = 20.;		
float k_over_rho_c = K / (RHO*(	C); // units of m <sup>2</sup> /sec NOTE: this cannot be a const!	
// K / (KHO C) = 5.55x10 -0 III 2	2/Sec	
const float DX = 1.0;		
const float DT = 1.0;		
#define THEBOSS 0		
#define NUMELEMENTS	(8*1024*1024)	
#define NUM_TIME_STEPS	4	
#define DEBUG	false	
float * NextTemps;	// per-processor array to hold computer next-values	
int NumCpus;	// total # of cpus involved	
int PPSize;	// per-processor local array size	
float * PPTemps;	// per-processor local array temperature data	
Tioat ^ TempData;	// the overall NUMELEMEN I S-big temperature data	
void DoOneTimeStep( int	);	
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	heat.cpp, IV	35
	// all the PPTemps arrays have now been filled // do the time steps:	
	double time0 = <b>MPI_Wtime(</b> );	
	for( int steps = 0; steps < NUM_TIME_STEPS; steps++ ) {     // do the computation for one time step:     DoOneTimeStep( me );	
#ifdef WAI #endif	// ask for all the data: NT_EACH_TIME_STEPS_DATA_BACK MPI_Gather( PPTemps, PPSize, MPI_FLOAT, TempData, PPSize, MPI_FLOAT, THEBOSS, MPI_COMM_WORLD ); }	
#ifndef WA	ANT_EACH_TIME_STEPS_DATA_BACK MPI_Gather( PPTemps, PPSize, MPI_FLOAT, TempData, PPSize, MPI_FLOAT, THEBOSS, MPI_COMM_WORLD ); double time1 = MPI_Wtime( );	
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DoOneTimeStep, I 37		
// read from PerProcessorData[ ], write into	NextTemps[ ]	
void DoOneTimeStep( int me )		
MPI_Status status;	CPU #0 CPU #1 CPU #2 CPU #3	
<pre>// send out the left and right end // (the tag is from the point of vie if( me != 0) {     // send my PPTemps     MPL_Send( &amp;PPTem     if( DEBUG ) fprintf( }     if( me != NumCpus-1)     {         // send my PPTemps         MPL_Send( &amp;PPTem         if( DEBUG ) fprintf( ;     } } </pre>	values: w of the sender) // i.e., if i'm not the first group on the left ([0] to me-1 using tag 'L' psc[0] 1, MPL_FLOAT, me-1, 'L', MPL_COMM_WORLD ); stderr, "%3d sent 'L' to %3d\n", me, me-1 ); // i.e., not the last group on the right ([PPSize-1]) to me+1 using tag 'R' ps[IPPSize-1], 1, MPL_FLOAT, me+1, 'R', MPL_COMM_WORLD ); stderr, "%3d sent 'R' to %3d\n", me, me+1 );	
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MPI Timing	49
double MPI_Wtick(); Returns the resolution of the clock, in seconds.	
double MPI_Wtime(); Returns the time, in seconds, since "some time in the past".	
Warning: the clocks on the different CPUs are not guaranteed to be synchronized	!
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	IMI	PI Error Codes	5
MPLSUCCESS MPLERR.DUFFER MPLERR.COUNT MPLERR.TYPE MPLERR.TAG MPLERR.TAG MPLERR.CAG MPLER	No error Invalid baffer pointer Invalid out agument Invalid que agument Invalid que agument Invalid rom Invalid rom Invalid for the Invalid poenton Invalid poenton Invalid poenton Invalid poenton Invalid quenton Invalid poenton Invalid po	MPLERR, KEYVAL MPLERR, NO, MEM MPLERR, BASE MPLERR, INFO, KEY MPLERR, INFO, NOKEY MPLERR, INFO, NOKEY MPLERR, SPAVN MPLERR, SPAVN MPLERR, SKRVCE MPLERR, NAME MPLERR, NAME MPLERR, INFO MPLERR, INFO MPLERR, INFO MPLERR, SSERT MPLERR, SSERT MPLERR, ASSERT	Invalid keyval has been passed MPI_ALLOC_MEM failed because memory is exhausted Invalid hase passed to MPI_REE_MEM Key longer than MPI_MAX_INFO_KEY Value longer than MPI_MAX_INFO_KEY Invalid key passed to MPI_INFO_DELETE Error in spowning processes Invalid service name passed to MPI_COMM_CONNECT Invalid service name passed to MPI_COMM_CONNECT Invalid service name passed to MPI_LOOKUP_NAME Invalid service name name to MPI_LOOKUP_NAME Invalid service name to MPI_LOOKUP_NAME Invalid service name to maintee the top of top
MP_ERR_NUST MP_ERR_NOT_SAI MP_ERR_NAMODE MP_ERR_NAMODE MP_ERR_NOS_UC MP_ERR_NOS_UC MP_ERR_NOS_MC MP_ERR_NOS_MC MP_ERR_NOS_MC MP_ERR_NOS_MC MP_ERR_NOS_MC MP_ERR_NOS_MC MP_ERR_NOS_MC MP_ERR_NOS_MC	Collective args ORTED_DATAREP ORTED_DATAREP IFILE STS E Un V Un	Invalid framed to the second s	Throng systemational to the RMA Causs Handle Ulective containes sailabed in a different order by different asses of an MP_FILE_CPEN to MP_FILE_CPEN VIEW a file which supports sequential access only not exist public matching of the second second second text of the system a denied the file is currently open by some process that representation identifier that was already defined was ISTER_DATARCEP lief data conversion function.