

These are the results of profiling done on AMG2006 application run with command line options as follows –

mpirun -np 64 amg2006 -P 4 4 4 [-r 6 6 6] -laplace

Function	count	%time
RUN_1		
hypre_CSRMatrixMatvecT	63	25
hypre_BoomerAMGCoarsen	5	25
hypre_BoomerAMGBuildInterp	5	25
RUN_2		
hypre_BoomerAMGBuildCoarseOperator	6	25
hypre_CSRMatrixMatvec	210	12
hypre_BoomerAMGRelax	91	21
hypre_BoomerAMGCoarsen	7	11.7
hypre_BoomerAMGBuildInterp	6	8
RUN_3		
hypre_BoomerAMGBuildCoarseOperator	7	3
hypre_BigBinarySearch	143993	9
hypre_ParCSRMatrixExtractConvBExt	12	3
RUN_4		
hypre_BoomerAMGBuildCoarseOperator	7	23.5
hypre_BoomerAMGRelax	180	18.7
hypre_BoomerAMGCoarsen	8	12.7
hypre_CSRMatrixMatvec	412	9.11
hypre_BigBinarySearch	3622409	8.39
hypre_BoomerAMGBuildInterp	7	6.24
	7	
RUN_5		
hypre_BoomerAMGCoarsen	6	10.34
RUN_6		
HYPRE_ParCSRPCGCreate	1	20
RUN_7		
hypre_BoomerAMGBuildCoarseOperator	6	33.33
hypre_BoomerAMGCoarsen	6	33.33
hypre_BoomerAMGBuildInterp	6	16.67

Summarizing the results, these functions consume most time –

functions	Frequency of occurrence	File location
hypr_BoomerAMGCoarsen	5	par_corsean.c
hypr_BoomerAMGBuildCoarseOperator	4	par_rap.c
hypr_BoomerAMGBuildInterp	4	par_interp.c
hypr_BigBinarySearch	2	
hypr_BoomerAMGRelax	2	
hypr_CSRMatrixMatvec	2	
hypr_ParCSRMatrixExtractConvBExt	1	
HYPRE_ParCSRPCGCreate	1	
hypr_CSRMatrixMatvecT	1	

These are the results of profiling done on AMG2006 application run with command line options as follows –

mpirun -np 64 amg2006 -P 4 4 4 [-r 6 6 6] -27pts

Function	count	%time
RUN_1		
hypr_CSRMatrixMatvec	284	7.14
hypr_BoomerAMGRelax	130	7.14
hypr_BoomerAMGIndepSet	68	7.14
hypr_BoomerAMGBuildCoarseOperator	6	7.14
RUN_2		
hypr_CSRMatrixMatvec	126	25
hypr_BoomerAMGCoarsen	5	12.5
hypr_BoomerAMGBuildCoarseOperator	4	12.5
RUN_3		
hypr_ParCSRCommHandleCreate	7	100
RUN_4		
hypr_BoomerAMGCoarsen	5	33.33
hypr_BoomerAMGRelax	54	16.67
hypr_ParCSRMatrixExtractConvBExt	9	16.67
hypr_BoomerAMGBuildInterp	4	16.67
RUN_5		
hypr_CSRMatrixMatvec	126	27.27
hypr_BigSwap	44832	18.73
hypr_ParCSRCommHandleCreate	418	9.09
hypr_BoomerAMGRelax	54	9.09
hypr_ParCSRMatrixExtractConvBExt	9	9.09
hypr_BoomerAMGBuildCoarseOperator	4	9.09
RUN_6		
hypr_BoomerAMGBuildCoarseOperator	4	33
hypr_BoomerAMGCoarsen	5	16.67
hypr_BoomerAMGBuildInterp	4	16.67
RUN_7		
hypr_BigBinarySearch	55377	25
hypr_BoomerAMGBuildCoarseOperator	4	25
RUN_8		
hypr_BoomerAMGBuildInterp	4	22.22
hypr_BoomerAMGRelax	54	11.11
hypr_BoomerAMGCoarsen	5	11.11
hypr_BoomerAMGCreateS	5	11.11
hypr_BoomerAMGBuildCoarseOperator	4	11.11

Summarizing the results, these functions consume most time –

functions	Frequency of occurrence	File location
hypr_BoomerAMGBuildCoarseOperator	6	
hypr_BoomerAMGCoarsen	4	
hypr_BoomerAMGRelax	4	
hypr_BoomerAMGBuildInterp	3	
hypr_BigBinarySearch	1	
hypr_BigSwap	1	
whypr_BoomerAMGCreateS	1	
hypr_BoomerAMGIndepSet	1	