

Report: CS422

Programming Assignment 1

Group 1

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400.perlbench diffmail.pl

Instruction Type Results:

Loads: 356203304 (0.228005)
Stores: 206221408 (0.132002)
NOPs: 974707 (0.000623908)
Direct calls: 12843565 (0.00822115)
Indirect calls: 2813126 (0.00180068)
Returns: 15656695 (0.0100218)
Unconditional branches: 30501984 (0.0195243)
Conditional branches: 130065739 (0.0832549)
Logical operations: 100375207 (0.06425)
Rotate and Shift: 4272765 (0.00273499)
Flag operations: 868515 (0.000555935)
Vector instructions: 0 (0)
Conditional moves: 0 (0)
MMX and SSE instructions: 0 (0)
System calls: 0 (0)
Floating point instructions: 954096 (0.000610715)
The rest: 700508425 (0.448394)
CPI: 29.1211

Instruction Size Results:

0: 0
1: 117568177
2: 256862334
3: 275033288
4: 52953505
5: 78550590
6: 185057308
7: 33974758
8: 28
9: 0
10: 12
11: 0
12: 0
13: 0
14: 0
15: 0
16: 0
17: 0
18: 0
19: 0

Memory Instruction Operand Results:

0: 453449920
1: 530898226
2: 15486678
3: 0
4: 0

Memory Instruction Read Operand Results:

0: 191126546
1: 354389509
2: 868849
3: 0
4: 0

Memory Instruction Write Operand Results:

0: 340640529
1: 205744375
2: 0
3: 0
4: 0

Instruction Operand Results:

0: 974707
1: 1077837
2: 520433314
3: 355077497
4: 103530497
5: 15658390
6: 3247758
7: 0
8: 0
9: 0

Instruction Register Read Operand Results:

0: 10216374
1: 259878278
2: 537904662
3: 179178891
4: 7007352
5: 2566685
6: 3247758
7: 0
8: 0
9: 0

Instruction Register Write Operand Results:

0: 136065207
1: 684887585
2: 175795754
3: 2382582
4: 868872
5: 0
6: 0
7: 0
8: 0
9: 0

Instruction Blocks Accesses: 2808

Data Blocks Accesses: 31195

Maximum number of bytes touched by an instruction: 8

Average number of bytes touched by an instruction: 3.73924

Maximum value of immediate: 2147483647

Minimum value of immediate: -2147483648

Maximum value of displacement used in memory addressing: 135918104

Minimum value of displacement used in memory addressing: -1408

401.bzip2 input.source

Instruction Type Results:

Loads: 452705858 (0.268847)
Stores: 231174314 (0.137287)
NOPs: 36514 (2.16845e-05)
Direct calls: 791576 (0.000470092)
Indirect calls: 13 (7.72028e-09)
Returns: 791585 (0.000470097)
Unconditional branches: 21299275 (0.012649)
Conditional branches: 129923016 (0.0771571)
Logical operations: 71000925 (0.0421652)
Rotate and Shift: 61832193 (0.0367202)
Flag operations: 6130 (3.64041e-06)
Vector instructions: 0 (0)
Conditional moves: 0 (0)
MMX and SSE instructions: 0 (0)
System calls: 0 (0)
Floating point instructions: 0 (0)
The rest: 714314688 (0.424209)
CPI: 35.194

Instruction Size Results:

0: 0
1: 38611319
2: 219201535
3: 436966312
4: 75326853
5: 22047180
6: 141356893
7: 51341666
8: 15085632
9: 0
10: 62610
11: 0
12: 0
13: 0
14: 0
15: 0
16: 0
17: 0
18: 0
19: 0

Memory Instruction Operand Results:

0: 399852690
1: 516406278
2: 83736947
3: 0
4: 0

Memory Instruction Read Operand Results:

0: 147437367
1: 452705858
2: 0
3: 0
4: 0

Memory Instruction Write Operand Results:

0: 368968911
1: 231174314
2: 0
3: 0
4: 0

Instruction Operand Results:

0: 36514
1: 6147
2: 597647676
3: 382870297
4: 2693783
5: 14191375
6: 2554208
7: 0
8: 0
9: 0

Instruction Register Read Operand Results:

0: 5189068
1: 183351886
2: 533608373
3: 215105767
4: 46790899
5: 13399799
6: 2554208
7: 0
8: 0
9: 0

Instruction Register Write Operand Results:

0: 132331561
1: 712782102
2: 152332112
3: 2554225
4: 0
5: 0
6: 0
7: 0
8: 0
9: 0

Instruction Blocks Accesses: 753

Data Blocks Accesses: 2441019

Maximum number of bytes touched by an instruction: 8

Average number of bytes touched by an instruction: 3.48541

Maximum value of immediate: 1431655766

Minimum value of immediate: -858993459

Maximum value of displacement used in memory addressing: 135000192

Minimum value of displacement used in memory addressing: -4848

403.gcc cp-decl.i

Instruction Type Results:

Loads: 338884652 (0.224543)
Stores: 170335975 (0.112864)
NOPs: 3905948 (0.00258806)
Direct calls: 30221292 (0.0200244)
Indirect calls: 396109 (0.000262459)
Returns: 30617401 (0.0202869)
Unconditional branches: 31772428 (0.0210522)
Conditional branches: 145817192 (0.0966175)
Logical operations: 54600163 (0.0361777)
Rotate and Shift: 634872 (0.000420662)
Flag operations: 0 (0)
Vector instructions: 0 (0)
Conditional moves: 0 (0)
MMX and SSE instructions: 0 (0)
System calls: 0 (0)
Floating point instructions: 0 (0)
The rest: 702034595 (0.465164)
CPI: 26.461

Instruction Size Results:

0: 0
1: 181978624
2: 305565912
3: 282662454
4: 87593160
5: 53448081
6: 76319512
7: 12432257
8: 0
9: 0
10: 0
11: 0
12: 0
13: 0
14: 0
15: 0
16: 0
17: 0
18: 0
19: 0

Memory Instruction Operand Results:

0: 495938403
1: 498902567
2: 5159030
3: 0
4: 0

Memory Instruction Read Operand Results:

0: 165176945
1: 338884652
2: 0
3: 0
4: 0

Memory Instruction Write Operand Results:

0: 333725622
1: 170335975
2: 0
3: 0
4: 0

Instruction Operand Results:

0: 3905948
1: 2491792
2: 426160253
3: 363402433
4: 173422173
5: 30617401
6: 0
7: 0
8: 0
9: 0

Instruction Register Read Operand Results:

0: 7272318
1: 316989688
2: 482070931
3: 189701216
4: 3569738
5: 396109
6: 0
7: 0
8: 0
9: 0

Instruction Register Write Operand Results:

0: 67562433
1: 724670150
2: 207767417
3: 0
4: 0
5: 0
6: 0
7: 0
8: 0
9: 0

Instruction Blocks Accesses: 242

Data Blocks Accesses: 66157

Maximum number of bytes touched by an instruction: 8

Average number of bytes touched by an instruction: 3.76978

Maximum value of immediate: 136599840

Minimum value of immediate: -2147483587

Maximum value of displacement used in memory addressing: 138633083

Minimum value of displacement used in memory addressing: -96

429.mcf

Instruction Type Results:

Loads: 415212495 (0.272225)
Stores: 110040171 (0.0721455)
NOPs: 1477638 (0.000968782)
Direct calls: 12556363 (0.00823232)
Indirect calls: 0 (0)
Returns: 12556363 (0.00823232)
Unconditional branches: 8314476 (0.00545121)
Conditional branches: 178242828 (0.116861)
Logical operations: 75119532 (0.0492505)
Rotate and Shift: 3516410 (0.00230546)
Flag operations: 0 (0)
Vector instructions: 0 (0)
Conditional moves: 0 (0)
MMX and SSE instructions: 0 (0)
System calls: 0 (0)
Floating point instructions: 0 (0)
The rest: 708216390 (0.464327)
CPI: 27.2626

Instruction Size Results:

0: 0
1: 80626492
2: 485393557
3: 315526126
4: 50531353
5: 22076615
6: 5249757
7: 40596100
8: 0
9: 0
10: 0
11: 0
12: 0
13: 0
14: 0
15: 0
16: 0
17: 0
18: 0
19: 0

Memory Instruction Operand Results:

0: 487182373
1: 500382588
2: 12435039
3: 0
4: 0

Memory Instruction Read Operand Results:

0: 97605132
1: 415212495
2: 0
3: 0
4: 0

Memory Instruction Write Operand Results:

0: 402777456
1: 110040171
2: 0
3: 0
4: 0

Instruction Operand Results:

0: 1477638
1: 0
2: 484784937
3: 457346724
4: 43834338
5: 12556363
6: 0
7: 0
8: 0
9: 0

Instruction Register Read Operand Results:

0: 3759861
1: 148510605
2: 677530846
3: 170198688
4: 0
5: 0
6: 0
7: 0
8: 0
9: 0

Instruction Register Write Operand Results:

0: 70906675
1: 770283346
2: 158771468
3: 38511
4: 0
5: 0
6: 0
7: 0
8: 0
9: 0

Instruction Blocks Accesses: 65

Data Blocks Accesses: 11672907

Maximum number of bytes touched by an instruction: 4

Average number of bytes touched by an instruction: 4

Maximum value of immediate: 1374389535

Minimum value of immediate: -100000000

Maximum value of displacement used in memory addressing: 134957120

Minimum value of displacement used in memory addressing: -76

450.soplex ref.mps

Instruction Type Results:

Loads: 546362980 (0.331629)
Stores: 101149822 (0.0613955)
NOPs: 11471 (6.96262e-06)
Direct calls: 3199444 (0.00194198)
Indirect calls: 135 (8.19417e-08)
Returns: 3199579 (0.00194207)
Unconditional branches: 13171022 (0.00799449)
Conditional branches: 103110479 (0.0625855)
Logical operations: 13848328 (0.0084056)
Rotate and Shift: 10323916 (0.00626636)
Flag operations: 23244937 (0.0141091)
Vector instructions: 0 (0)
Conditional moves: 0 (0)
MMX and SSE instructions: 0 (0)
System calls: 0 (0)
Floating point instructions: 306667552 (0.18614)
The rest: 523223137 (0.317584)
CPI: 33.3756

Instruction Size Results:

0: 0
1: 77075441
2: 441684114
3: 398958236
4: 16506344
5: 3277725
6: 40943890
7: 17615588
8: 3938662
9: 0
10: 0
11: 0
12: 0
13: 0
14: 0
15: 0
16: 0
17: 0
18: 0
19: 0

Memory Instruction Operand Results:

0: 530021471
1: 439602075
2: 30376454
3: 0
4: 0

Memory Instruction Read Operand Results:

0: 52879281
1: 417099248
2: 0
3: 0
4: 0

Memory Instruction Write Operand Results:

0: 386722794
1: 83255735
2: 0
3: 0
4: 0

Instruction Operand Results:

0: 11471
1: 23
2: 415270404
3: 395014100
4: 186468205
5: 3235797
6: 0
7: 0
8: 0
9: 0

Instruction Register Read Operand Results:

0: 23455330
1: 216024871
2: 577322366
3: 140222612
4: 42938489
5: 36332
6: 0
7: 0
8: 0
9: 0

Instruction Register Write Operand Results:

0: 69539567
1: 764796405
2: 165664028
3: 0
4: 0
5: 0
6: 0
7: 0
8: 0
9: 0

Instruction Blocks Accesses: 1177

Data Blocks Accesses: 5682052

Maximum number of bytes touched by an instruction: 8

Average number of bytes touched by an instruction: 5.25245

Maximum value of immediate: 2147483647

Minimum value of immediate: -1074790400

Maximum value of displacement used in memory addressing: 135856732

Minimum value of displacement used in memory addressing: -344

456.hmmmer np3.hmm

Instruction Type Results:

Loads: 547670127 (0.337367)
Stores: 75698537 (0.0466306)
NOPs: 34317 (2.11394e-05)
Direct calls: 144622 (8.90876e-05)
Indirect calls: 959 (5.90747e-07)
Returns: 145581 (8.96784e-05)
Unconditional branches: 205862 (0.000126812)
Conditional branches: 144361633 (0.0889273)
Logical operations: 1158704 (0.000713766)
Rotate and Shift: 294108 (0.000181172)
Flag operations: 5669 (3.49212e-06)
Vector instructions: 0 (0)
Conditional moves: 0 (0)
MMX and SSE instructions: 0 (0)
System calls: 0 (0)
Floating point instructions: 40212 (2.47707e-05)
The rest: 853607370 (0.525825)
CPI: 32.1684

Instruction Size Results:

0: 0
1: 25078705
2: 302861295
3: 296150036
4: 270388635
5: 24861165
6: 68360363
7: 416483
8: 11883318
9: 0
10: 0
11: 0
12: 0
13: 0
14: 0
15: 0
16: 0
17: 0
18: 0
19: 0

Memory Instruction Operand Results:

0: 376809003
1: 623023923
2: 166111
3: 0
4: 0

Memory Instruction Read Operand Results:

0: 75527790
1: 547662244
2: 0
3: 0
4: 0

Memory Instruction Write Operand Results:

0: 547496133
1: 75693901
2: 0
3: 0
4: 0

Instruction Operand Results:

0: 34887
1: 3512
2: 566126453
3: 432938674
4: 713115
5: 159551
6: 23808
7: 0
8: 0
9: 0

Instruction Register Read Operand Results:

0: 610949
1: 75620324
2: 562399107
3: 281425562
4: 79905321
5: 14929
6: 23808
7: 0
8: 0
9: 0

Instruction Register Write Operand Results:

0: 75148967
1: 755280071
2: 169547154
3: 23808
4: 0
5: 0
6: 0
7: 0
8: 0
9: 0

Instruction Blocks Accesses: 485

Data Blocks Accesses: 84054

Maximum number of bytes touched by an instruction: 8

Average number of bytes touched by an instruction: 3.99751

Maximum value of immediate: 2147483647

Minimum value of immediate: -987654321

Maximum value of displacement used in memory addressing: 135294312

Minimum value of displacement used in memory addressing: -580

471.omnetpp

Instruction Type Results:

Loads: 371223581 (0.231871)
Stores: 229770941 (0.143518)
NOPs: 802040 (0.000500964)
Direct calls: 21323705 (0.013319)
Indirect calls: 3688453 (0.00230385)
Returns: 25012161 (0.0156229)
Unconditional branches: 22184188 (0.0138565)
Conditional branches: 117348321 (0.0732971)
Logical operations: 60016070 (0.0374867)
Rotate and Shift: 7152318 (0.00446742)
Flag operations: 20156512 (0.01259)
Vector instructions: 0 (0)
Conditional moves: 0 (0)
MMX and SSE instructions: 0 (0)
System calls: 0 (0)
Floating point instructions: 96936050 (0.0605474)
The rest: 625380182 (0.39062)
CPI: 31.0497

Instruction Size Results:

0: 0
1: 154557939
2: 308538146
3: 382106005
4: 34343013
5: 45112931
6: 48828682
7: 26512863
8: 0
9: 0
10: 421
11: 0
12: 0
13: 0
14: 0
15: 0
16: 0
17: 0
18: 0
19: 0

Memory Instruction Operand Results:

0: 449263790
1: 542971602
2: 7764608
3: 0
4: 0

Memory Instruction Read Operand Results:

0: 212438169
1: 337159001
2: 1139040
3: 0
4: 0

Memory Instruction Write Operand Results:

0: 331672473
1: 219063737
2: 0
3: 0
4: 0

Instruction Operand Results:

0: 802040
1: 226022
2: 518298255
3: 281785376
4: 172723520
5: 25025747
6: 1139040
7: 0
8: 0
9: 0

Instruction Register Read Operand Results:

0: 29000572
1: 197508958
2: 540436796
3: 219768642
4: 8460182
5: 3685810
6: 1139040
7: 0
8: 0
9: 0

Instruction Register Write Operand Results:

0: 165345656
1: 665549602
2: 167589760
3: 375942
4: 1139040
5: 0
6: 0
7: 0
8: 0
9: 0

Instruction Blocks Accesses: 890

Data Blocks Accesses: 529669

Maximum number of bytes touched by an instruction: 8

Average number of bytes touched by an instruction: 4.22163

Maximum value of immediate: 2147483647

Minimum value of immediate: -2092037281

Maximum value of displacement used in memory addressing: 136090116

Minimum value of displacement used in memory addressing: -104

483.xalancbmk

Instruction Type Results:

Loads: 366276310 (0.238773)
Stores: 168185768 (0.109639)
NOPs: 22311795 (0.0145449)
Direct calls: 13127535 (0.00855777)
Indirect calls: 8954195 (0.00583719)
Returns: 22081559 (0.0143948)
Unconditional branches: 8550442 (0.00557398)
Conditional branches: 178524111 (0.116379)
Logical operations: 37558738 (0.0244843)
Rotate and Shift: 5572155 (0.00363246)
Flag operations: 1655504 (0.00107921)
Vector instructions: 0 (0)
Conditional moves: 0 (0)
MMX and SSE instructions: 0 (0)
System calls: 0 (0)
Floating point instructions: 7226897 (0.00471117)
The rest: 693966010 (0.452392)
CPI: 27.7226

Instruction Size Results:

0: 0
1: 145284870
2: 321194773
3: 446408872
4: 31653413
5: 23918510
6: 23516137
7: 7636612
8: 260208
9: 60248
10: 66357
11: 0
12: 0
13: 0
14: 0
15: 0
16: 0
17: 0
18: 0
19: 0

Memory Instruction Operand Results:

0: 495505133
1: 477027185
2: 26996623
3: 0
4: 0

Memory Instruction Read Operand Results:

0: 140060631
1: 363963177
2: 0
3: 0
4: 0

Memory Instruction Write Operand Results:

0: 336966554
1: 167057254
2: 0
3: 0
4: 0

Instruction Operand Results:

0: 22311795
1: 740535
2: 422728203
3: 413473895
4: 101243782
5: 24020500
6: 15481290
7: 0
8: 0
9: 0

Instruction Register Read Operand Results:

0: 29712554
1: 237241769
2: 457558052
3: 249969717
4: 1201193
5: 8835425
6: 15481290
7: 0
8: 0
9: 0

Instruction Register Write Operand Results:

0: 113280934
1: 686082477
2: 185153490
3: 15483099
4: 0
5: 0
6: 0
7: 0
8: 0
9: 0

Instruction Blocks Accesses: 2295

Data Blocks Accesses: 657333

Maximum number of bytes touched by an instruction: 8

Average number of bytes touched by an instruction: 4.15894

Maximum value of immediate: 2147483647

Minimum value of immediate: -1431655765

Maximum value of displacement used in memory addressing: 139657912

Minimum value of displacement used in memory addressing: -1392