Results from the Compiler Construction Competition

IMADA

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Programs

Program	Group					
	1	2	3	4	6	7
C_ErrAssignToType						
C_ErrFuncParamsInvalidType						
C_ErrFuncParamsTooFew						
C_ErrFuncParamsTooMany						
C_ErrInvalidToken						
C_ErrTypeLoop						
C_ErrUnmatchedBeginComment					C_E	
C_NullWrong						
C_ReturnInMainScope						
F_FuncParamsEvalOrder	R_O		R_O			
F_RecordIsTupleOrSet	C_E	C_E	C_E			C_E
F_ShortCircuitAND					R_T	
F_ShortCircuitOR		R_T			R_T	
F_SimpleStructuralEquiv	C_E	C_E	C_E	C_E	C_E	
O_AbsoluteValueTest						
O_AbsTest						
O_ArrayComparisonsA						
O_ArrayComparisonsB						
O_ArrayIndex						
O_ArrayLength						
O_ArrayOfOwnType						C_E
O_ArrayOfRecords						
O_Assoc						
O_BinarySearchTree						
O_Comments						
O_Factorial						
O_FuncCallAsParamA						
O_FuncCallAsParamB						
O_FuncModifyingParams						

Program	Group					
	1	2	3	4	6	7
O_FuncRedefinedInItself						
O_FuncRedefinedReturnType						
O_FuncRedefinedType						
O_FuncReturnRecord						
O_Function						
O_IfThen						
O_Knapsack						
O_KnapsackNoComments						
O_LargeExpTreeA						
O_LargeExpTreeB						
O_LargeExpTreeC						
O_MultiDimArray						
O_MultipleTypecheckPassesA						
O_MultipleTypecheckPassesB						
O_MultipleTypecheckPassesC						
O_NullCorrect						
O_RecordComparisonsA						
O_RecordComparisonsB						
O_RecordsWithArray						
O_Recursion						
O_SimpleRecord						
O_StaticLinkA						
O_StaticLinkB						
O_StaticLink						
O_TypeJumpScope						
O_WhileDo						
R_ErrOutOfBounds1	R_E				$R_E(5)$	R_E
R_ErrOutOfBounds2	R_E				$R_E(5)$	R_E
R_ErrRuntimeDiv0						$R_E(136)$
R_ErrRuntimeNegArraySize	R_E					R_S
R_ErrRuntimeNullPointer	R_S	C_O	R_S	R_S		R_S
R_ErrRuntimeOutOfMem	R_S	R_S	$R_E(0)$		R_S	

Total

Format: #all errors(#problematic errors)

	Group					
Problem Type	1	2	3	4	6	7
Compile-time	2(0)	3(1)	2(0)	1(0)	2(1)	2(1)
Run-time	6(0)	2(0)	2(1)	1(0)	5(2)	5(0)
Total (of 61 tests)	8(0)	5(1)	4(1)	2(0)	7(3)	7(1)

Legend

Compile-time problems:

C_E : Compiler gives no or incorrect error when an error during compilation was expected, or compiler gives an error when no error during compilation was expected.

$C_E(N)$: As C_E with the error code being N.

C_O : The produced output cannot be assembled.

Run-time problems:

R_T : The compiled program does not terminate.

R_E : The compiled program gives no or incorrect runtime error when a runtime error was expected, or the compiled program gives a runtime error when no runtime error was expected.

$R_E(N)$: As R_E with the error code being N.

R_S : The compiled program gives Segmentation fault or Floating exception.

R_O : The compiled program produces incorrect output.

Time Trial on Knapsack

Compilation done using the -x switch (except when the compiler does not work with it). All tests performed on desdemona, each program run 3 times.

Compiler	First	Second	Third	Average
1	18.917s	18.899s	18.781s	18.862s
2	42.367s	41.959s	42.107s	42.144s
3	13.841s	13.877s	13.825s	13.848s
4	10.085s	10.109s	10.109s	10.101s
6	35.958s	35.930s	35.950s	35.946s
7	33.014s	32.870s	32.930s	32.938s
GCC	12.653s	12.497s	12.477s	12.542s
GCC O1	9.905s	9.821s	10.037s	9.921s
GCC O2	9.629s	9.373s	9.377s	9.460s
GCC O3	8.877s	8.885s	8.821s	8.861s
TA's	15.721s	15.501s	15.421s	15.548s

Extra Features

Update with group 6

	Group					
Feature	1	2	3	4	6	7
Garbage collection					?	✓
Object oriented		✓			?	
Peephole optimization	✓(4)	✓(4)	✓(12)	✓(10)	?	
Adv. register allocation	✓		✓	✓	?	