

instrmix user manual

Title	instrmix (Instruction mix extraction pass for Machine SUIF)
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Rev. history	
v1.1.1	2014-09-23 Updated headers in all source code files. Added File Listing section in README; new files AUTHORS, LICENSE and VERSION.
v1.1.0	2014-02-24 Changed documentation format to RestructuredText.
v1.0.0	2004-07-18 Initial release.

1. Introduction

`instrmix` is an analysis pass that generates the SUIFvm (SUIF virtual machine) instruction mix for a given input source file. A textual report is written to file `instr_mix_report.rpt`.

Instructions are categorized as follows:

arithmetic: ADD, SUB, NEG, ABS, MIN, MAX, MOV, LDC, LDA;

logical: NOT, AND, IOR, XOR;

comparison: SEQ, SNE, SL, SLE; (set instructions)

shift: ASR, LSL, LSR, ROT;

division: DIV, REM, MOD;

multiply: MUL;

load: LOD;

store: STR;

ubr: JMP, JMPI; (unconditional branch/jump)

cbr: BFALSE, BTRUE, BEQ, BNE, BGE, BGT, BLE, BLT; (cond. branch/jump)

call: CAL;

return: RET;

other: any instruction not fitting into the previous categories.

This pass works for the SUIF virtual machine instruction set (SUIFvm). Also, the `instrmix` pass has been tested with MachSUIF 2.02.07.15.

2. File listing

The `instrmix` distribution includes the following files:

/instrmix	Top-level directory
AUTHORS	List of <code>instrmix</code> authors.
LICENSE	The modified BSD license governs <code>instrmix</code> .
README.rst	This file.
README.html	HTML version of README.
README.pdf	PDF version of README.
VERSION	Current version of the project sources.
instrmix.cpp	Implementation of the <code>instrmix</code> pass.
instrmix.h	C++ header file containing declarations and prototypes for the above.
rst2docs.sh	Bash script for generating the HTML and PDF versions of the documentation (README).
suif_main.cpp	Entry point for building the standalone program <code>do_instrmix</code> that implements the pass.
suif_pass.cpp	Define the SUIF pass built as the dynamically loadable library <code>libinstrmix.so</code> .
suif_main.h	C++ header file for the above.
utils.h	C header file with implementations of auxiliary functions.

3. Installation

Unpack the `instrmix` archive wherever you like, e.g. in `$MACHSUIFHOME/instrmix`. You don't need to modify anything in the Makefile, if you have a working MachSUIF 2 installation.

The program binary (`do_instrmix`) will be installed at `$NCIHOME/bin` and the shared library (`libinstrmix.so`) at `$NCIHOME/so/lib`, where `NCIHOME` is the SUIF 2 top-level directory.

4. Usage details

The pass accepts an input file in CFG form to operate. You don't have to define any output files since their naming convention has been hardwired.

Usage synopsis:

```
$ ./do_instrmix test.cfg
```