

xopreplace user manual

Title	xopreplace (Machine-SUIF pass for replacing a function call by a SUIFvm operator)
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v1.0.0	2004-10-02 Initial release.

1. Introduction

`xopreplace` is a transformation pass that is used for replacing occurrences of certain function calls by instances of equivalent operators, if such exist. It can be used on the SUIFvm IR (intermediate representation) for replacing builtin functions by SUIFvm operators that provide the same functionality. This allows for expanding basic blocks and identifying better opportunities for optimizations in the context of software and hardware synthesis.

The supported operators currently are:

abs: absolute value

min: minimum of two operands

max: maximum of two operands.

This pass depends on the machine, cfg and suifvm libraries MachSUIF. The `xopreplace` pass has been tested with MachSUIF 2.02.07.15.

2. File listing

The `xopreplace` distribution includes the following files:

<code>/xopreplace</code>	Top-level directory
<code>AUTHORS</code>	List of <code>xopreplace</code> authors.

LICENSE	The modified BSD license governs <code>xopreplace</code> .
README.rst	This file.
README.html	HTML version of README.
README.pdf	PDF version of README.
VERSION	Current version of the project sources.
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_xopreplace</code> that implements the pass.
suif_pass.cpp	Define the SUIF pass built as the dynamically loadable library <code>libxopreplace.so</code> .
suif_main.h	C++ header file for the above.
utils.h	C header file with implementations of auxiliary functions.
xopreplace.cpp	Implementation of the <code>xopreplace</code> pass.
xopreplace.h	C++ header file containing declarations and prototypes for the above.

3. Installation

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

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

4. Usage details

The pass accepts an input file in CFG form to operate. Textual output is generated, written to `stdout` by default.

Usage synopsis: `| $ do_xopreplace test.cfg`