

UNDER DEVELOPMENT

## MPC7447A Processor Functional Description

This hardware component is a Freescale MPC7447A, a 32-bit implementation of the PowerPC architecture used for both general purpose (PowerMacintosh and CHRP machines) and embedded applications (industrial and network). This model is still in development and currently uses [IssWrapper](#) to connect the ISS to the VCI xcache. The model should run applications not requiring the standard PowerPC MMU, and the PowerPC specific TLB and cache instructions.

## Compiling the ISS

Some additional steps are necessary to compile the model that will be removed once the model will be stable enough. The model needs three things to compile:

- the macro SOCLIB must be defined: add '-DSOCLIB' to 'cflags'
- libxml2 development headers must be installed: add '-L/usr/include/libxml2' to the 'cflags' and '-lxml2' to the 'libs'
- UNISIM Library somewhere on the file system and do a symbolic link into source and include directories. The following shell commands should be enough to do the job as long as SoCLib utilities (especially soclib-cc tool) are in your PATH:

```
$ svn --username guest --password "" export https://unisim.org/svn/devel/unisim_lib/unisim@10987
$ export SOCLIB=`soclib-cc --getpath`
$ ln -s unisim ${SOCLIB}/soclib/lib/mpc7447a/src/iss/unisim
$ ln -s unisim ${SOCLIB}/soclib/lib/mpc7447a/include/iss/unisim
```

Here is a sample for '~/.soclib/global.conf' to make it compile:

```
# -*- python -*-
# Maintainers: nipo

def _platform():
    """
    Retrieves platform information and make it look-like systemc's
    lib-xxx thing.

    Working so far with:
    * linux
    * darwin
    """
    import sys
    pf = sys.platform
    # Strip numeric suffix from platform name
    while pf[-1] in "0123456789":
        pf = pf[:-1]

    remap_pf = {'darwin':'macosx'}
    if pf in remap_pf:
        pf = remap_pf[pf]
    return pf

config.systemc = Config(
    base = config.systemc,
    dir = "${SYSTEMC}",
    os = _platform(),
)

config.mytoolchain = Config(
```

```

base= config.toolchain,
cflags=['-DSOCLIB', '-I/usr/include/libxml2'],
libs=['-lxml2', '-lbfd']
)

config.default = Config(
    base = config.build_env,
    systemc = config.systemc,
    toolchain = config.mytoolchain,
    repos = "/tmp/build/sc",
)

```

## Example platform

An example platform is available in directory `soclib/soclib/platform/topcells/caba-vgmn-mpc7447a`. It uses one MPC7447A module (Wrapped ISS), one VGMN interconnect module, two memory banks, and one output console (TTY). An software example is provided. The software includes a primitive firmware with some installed exceptions handlers and a primitive library to write characters on the TTY.

