



*****Installation Guide***

**Setting up New ASIPmeister**

***ASIP Meister 2.3.4***

***ASIP Solutions, October 2011***

By Sajjad Hussain

This work uses ASIP Meister developed by PEAS Project, Osaka University.

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# Why to Update?

The update is required based on the student feedback and complaints about the very old ASIPmeister tool.

## Problems

Following are the main problems that pushed to update the lab software:

1. ASIPmeister often crashes e.g., when Ctrl+C or Ctrl+V is pressed, and one has to repeat all the work again.
2. There is no copy-and-paste available. Students have to write almost similar text, which is tedious.
3. Scrolling is not available.
4. ASIPmeister required a separate retargetable compiler i.e. CoSy compiler that is installed on another machine.

## Purchase of New ASIPmeister

# Setting up ASIPmeister on i80pc57 using local License

Following readme files are helpful:

1. ASIP\_Meister\_145/AM234STDLIN/ASIPmeister/InstallGuide\_en.txt
2. ASIP\_Meister\_145/AM234STDLIN/ASIPSLicServ/InstallGuide\_en.txt

## Install CentOS

1. ASIP Meister requires the following environment. Otherwise, operation is not guaranteed.

OS: RedHat Enterprise Linux WS 4 32-bit

Java: Java Runtime Environment 6 32-bit

1. This OS, we do not had, we installed the available CentOS-5.4 as per ASIP team suggestions.
2. Alternatively, you can download CentOS-5 images from following site. This also includes GCC repositories.

<http://www-ise1.ist.osaka-u.ac.jp/~takeuchi/TMP/CentOS5/CentOS-5.8-i386-bin-DVD-1of2.iso>

<http://www-ise1.ist.osaka-u.ac.jp/~takeuchi/TMP/CentOS5/CentOS-5.8-i386-bin-DVD-2of2.iso>

Account & pass are both centos5.

1. CentOS 5.11 is installed on the computer i80pc57.

[root@i80pc57 ~]# uname -a

Linux i80pc57 2.6.18-164.el5PAE #1 SMP Thu Sep 3 04:10:44 EDT 2009 i686 i686 i386 GNU/Linux

[root@i80pc57 ~]# cat /etc/redhat-release

CentOS release 5.11 (Final)

1. Create user accounts “sajjad” and “asip01” to “asip10” on i80pc57.
2. Mount ModelSim 6.6 and Xilix ISE 13.2 to i80pc57.

## Install JRE

1. The recommended JRE for the ASIPmeister machine and License server is Java: Java Runtime Environment 6 32-bit (jre-6u45-linux-i586-rpm.bin)
2. Same JRE version for license server and ASIPmeister
3. Can you down load the above file from the following URL <http://www.oracle.com/technetwork/java/javase/downloads/java-archive-downloads-javase6-419409.html>
4. Install the required into the directory /usr/java/jre1.6.0\_45/

[root@i80pc57 ~]# ls /usr/java/jre1.6.0\_45/

bin COPYRIGHT javaws lib LICENSE man plugin README THIRDPARTYLICENSEREADME.txt Welcome.html

## Install GCC

1. You need gcc (host compiler) to compile AM\_STD\_234-2/gcc-4.2.2 (target compiler).
2. gcc-4.2.2 for Intel is preferable version to be used.
3. We tried to install GCC-4.xx but could not succeed, as these libraries are no more available. Actually, the gcc repositories from CentOS Server are removed and we are not able to install it (Development Tools) even during the CentOS-5 fresh installation.
4. Mr. Martin installed the gcc from DVD (iso files provided by ASIP team).

[root@i80pc57 ~]# gcc --version

gcc (GCC) 4.1.2 20080704 (Red Hat 4.1.2-55)

## Install required Packages

1. The packages gdb,ncurses-devel,texi2html, texinfo, are installed to successfully compile the ASIP Tools binutils-2.16.1 gcc-4.2.2 gdb-6.4 newlib-1.14.0

[root@i80pc57 gdb-6.4]# yum install gdb

[root@i80pc57 gdb-6.4]# yum install ncurses-devel

[root@i80pc57 newlib-1.14.0]# yum install texinfo

[root@i80pc57 newlib-1.14.0]# yum install texi2html texinfo

[root@i80pc57 package2]# yum install bison

[root@i80pc57 package2]# yum install flex

1. ASIP Meister also requires libcryptocd.so.4.

$ ls -l libcrypto\*

1. I think you get the following results.

---

-rwxr-xr-x 1 root root 1156676 6月 5 2014 libcrypto.so.0.9.7a

-rwxr-xr-x 1 root root 1300836 5月 31 2016 libcrypto.so.0.9.8e

lrwxrwxrwx 1 root root 19 4月 13 09:36 libcrypto.so.4 -> libcrypto.so.0.9.7a

lrwxrwxrwx 1 root root 19 9月 30 2016 libcrypto.so.6 -> libcrypto.so.0.9.8e

----

1. ASIP Meister requires libcryptocd.so.4. If you don't have libcrypto.so.4, please type the following command.

$ cd /lib

$ sudo ln -s libcrypto.so.0.9.8e libcrypto.so.4

1. Then restart again.
2. ibrcypto.so.6 does not become automatical replacement of libcrypto.so.4. You should explicitly make libcrypto.so.4. Real library is libcrypto.so.0.9.8e, and it should be symbolically linked to libcrypto.so.4. Therefore, system recognizes it libcrypto.so.4.

## Install ASIPMeister

1. ASIPmeister installation sources are in ASIPmeister\_145.zip.
2. Un-zip this into the directory ASIPmeister\_145. This directory contains two images.
3. Copy the first (AM234STDLIN1) and second (AM\_STD-234-2) image contents into AM234STDLIN1 and AM\_STD-234-2 directories.
4. AM234STDLIN1 directory contains the ASIPmeister software and its license.
5. AM\_Std-2.3.4a.tar.gz: ASIPmeister software
6. ASIPSLicServ\_Linux.tar.gz: License Manager
7. browstd32\_v.1.1.6a.tar.gz: Sample Brownie sample for ASIPmeister
8. ASIPSLicServ\_Windows.zip: License Manager for Windows
9. AM\_STD-234-2 directory contains the utilities required for ASIPmeister.
10. binutils-2.16.1.tar.bz2
11. gcc-4.2.2.tar.bz2
12. gdb-6.4.tar.gz
13. newlib-1.14.0.tar.gz
14. The software is installed under /AM. Create /AM directory.
15. Copy AM\_STD-234-2 to /AM/AM\_tools directory.
16. Expand ASIPmeister AM234STDLIN1/ AM\_Std-2.3.4a.tar.gz to /AM/ASIPmeister directory.
17. Copy AM/ASIPmeister/Makefile.APDEV to to /AM/AM\_tools/Makefile.APDEV

[root@i80pc57 ~]# ls /AM/

AM\_tools ASIPmeister

[root@i80pc57 AM\_tools]# ls

binutils-2.16.1.tar.bz2 gcc-4.2.2.tar.bz2 gdb-6.4.tar.gz newlib-1.14.0.tar.gz Makefile.APDEV

1. Set the following environmental variables

[root@i80pc57 AM\_tools]# export ASIP\_APDEV\_SRCROOT=/AM/AM\_tools

[root@i80pc57 AM\_tools]# export ASIPmeister\_HOME=/AM/ASIPmeister

1. Installing the application program development environment generation tools in the directory AM\_tools.

[root@i80pc57 AM\_tools]# make -f Makefile.APDEV

1. Obtaining Machine Information, when using one machine (Node-Locked License)

[root@i80pc57 AM\_tools]# /sbin/ifconfig eth0

eth0 Link encap:Ethernet Hardware Adresse 00:50:DA:34:25:EF

## Setting up Local License

1. Java Runtime Environment (JRE) is installed at:

[root@i80pc57 ~]# ls /usr/java/jre1.6.0\_45/

bin COPYRIGHT javaws lib LICENSE man plugin README THIRDPARTYLICENSEREADME.txt Welcome.html

1. Unpack the License Server Package AM234STDLIN1/ASIPSLicServ\_Linux.tar.gz and Copy to location /usr/local/ASIPSLicServ
2. Copy your license file ASIPmeister\_145B.lic to location /usr/local/ASIPSLicServ
3. Edit ASIPSLicServ script in /usr/local/ASIPSLicServ to match your configuration. Specify your Java Runtime location, the Server software location, your license file location and name, and the TCP port number to accept accesses from other machines.
4. Edited /usr/local/ASIPSLicServ/ASIPSLicServ as follows:

JAVA\_HOME=/usr/java/jre1.6.0\_45

SERVER\_PATH=/usr/local/ASIPSLicServ

LICENSE\_FILE\_PATH=/usr/local/ASIPmeister\_145B.lic

1. Copy /usr/local/ASIPSLicServ/ASIPSLicServ script to /etc/init.d and Create symlink
2. Create symbolic link at /etc/rc.d/rc3.d and rc5.d as its name of S99ASIPSLicServ

# cd /etc/rc.d/rc3.d

# ln -s ../init.d/ASIPSLicServ S99ASIPSLicServ

1. After these settings, here are some important paths:

[root@i80pc57 ~]# ls /etc/init.d/ASIPS\*

/etc/init.d/ASIPSLicServ

[root@i80pc57 ~]# ls /etc/rc.d/rc3.d/S99ASIPS\*

/etc/rc.d/rc3.d/S99ASIPSLicServ

[root@i80pc57 ~]# ls /usr/local/ASIP\*

/usr/local/ASIPmeister\_145B.lic

/usr/local/ASIPSLicServ:

ASIPmeister.setup ASIPSLicServ~ ASIPSLicServ.jar ASIPSLicServ.pid InstallGuide\_en.txt jsvc

ASIPSLicServ ASIPSLicServ\_err.log ASIPSLicServ.log commons-daemon-1.0.7.jar InstallGuide\_ja.txt meister

[root@i80pc57 ~]# ls /usr/local/\*.lic

/usr/local/ASIPmeister\_145B.lic

1. Manually start server. License server starts every time when the machine boots. You may start the license server manually by service command.

# service ASIPSLicServ start

[root@i80pc57 init.d]# service ASIPSLicServ start

[root@i80pc57 init.d]#

1. Trouble Shooting. Log files are saved in the License Server installation directory. Contents of /usr/local/ASIPSLicServ/ASIPSLicServ\_err.log after starting license are:

Still running according to PID file /usr/local/ASIPSLicServ/ASIPSLicServ.pid, PID is 3227 Service exit with a return value of 122

## Starting ASIPmeister

1. Setting Environment Variables to run ASIPmeister

export ASIPS\_LICENSE=/usr/local/ASIPmeister\_145B.lic

export PATH=/usr/java/jre1.6.0\_45/bin:$PATH

export PATH=/AM/ASIPmeister/bin:$PATH

export ASIP\_APDEV\_SRCROOT=/AM/AM\_tools

export ASIPmeister\_HOME=/AM/ASIPmeister

export ASIPmeister\_Home=/AM/ASIPmeister

1. Starting ASIP Meister

root@i80pc57 AM\_tools]# . ~/.bashrc.user

root@i80pc57 AM\_tools]# ASIPmeister

# Setting up ASIPmeister on i80pc57 using float License from i80asip

Using the same steps, as for testing ASIPmeister with local license, following are the steps to test ASIPmeister using a floating license from a License Server.

## Install CentOS

1. CentOS 5.11 is installed on a Virtual Machine i80asip as it was on the computer i80pc57.

asip04@i80asip:~:$uname -a

Linux i80asip 2.6.18-419.el5.centos.plus #1 SMP Sat Feb 25 15:14:49 UTC 2017 i686 i686 i386 GNU/Linux

asip04@i80asip:~:$cat /etc/redhat-release

CentOS release 5.11 (Final)

1. Create user accounts “sajjad” and “asip01” to “asip10” on i80pc57.
2. Mount ModelSim 6.6 and Xilix ISE 13.2 to i80pc57.

## Install JRE

1. Install the a JRE and set the JRE path in the ASIPSLicServ file.

asip04@i80asip:~:$ls /usr/lib/jvm/jre-1.6.0-openjdk/

bin lib

## Install GCC

1. Installed the same gcc as on i80pc57.

asip04@i80asip:~:$gcc --version

gcc (GCC) 4.1.2 20080704 (Red Hat 4.1.2-55)

Copyright (C) 2006 Free Software Foundation, Inc.

This is free software; see the source for copying conditions. There is NO

warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

## Install required Packages

1. The packages gdb,ncurses-devel,texi2html, texinfo, are installed to successfully compile the ASIP Tools binutils-2.16.1 gcc-4.2.2 gdb-6.4 newlib-1.14.0, libcryptocd.so.4.
2. Perl package String::Interpolate using CPAN.

## Install ASIPMeister

1. The software is already installed under /AM on i80pc57

root@i80pc57 ~]# ls /AM/

AM\_tools ASIPmeister

## Setting up the floating License

1. Unpack the License Server Package AM234STDLIN1/ASIPSLicServ\_Linux.tar.gz and Copy to location /usr/local/ASIPSLicServ
2. Copy your license file ASIPmeister\_145C.lic to location /usr/local/ASIPSLicServ
3. Edit ASIPSLicServ script in /usr/local/ASIPSLicServ to match your configuration. Specify your Java Runtime location, the Server software location, your license file location and name, and the TCP port number to accept accesses from other machines.
4. Edited /usr/local/ASIPSLicServ/ASIPSLicServ as follows:

asip04@i80asip:~:$cd /etc/init.d/

asip04@i80asip:/etc/init.d:$cat ASIPSLicServ

#!/bin/bash

#

# license server startup script for linux

#

# copyright (c) 2011 asip solutions, inc. all rights reserved.

#

# edit lines below to match your configuration

#JAVA\_HOME=/usr/java/default

#JAVA\_HOME=/usr/bin/java

JAVA\_HOME=/usr/lib/jvm/jre-1.6.0-openjdk

SERVER\_PATH=/usr/local/ASIPSLicServ

LICENSE\_FILE\_PATH=/usr/local/ASIPSLicServ/ASIPmeister\_145C.lic

SERVER\_PORT=29000

# end edit lines

…

asip04@i80asip:/etc/init.d:$

1. Copy /usr/local/ASIPSLicServ/ASIPSLicServ script to /etc/init.d and Create symlink
2. Create symbolic link at /etc/rc.d/rc3.d and rc5.d as its name of S99ASIPSLicServ

# cd /etc/rc.d/rc3.d

# ln -s ../init.d/ASIPSLicServ S99ASIPSLicServ

1. After these settings, here are some important paths:

asip04@i80asip:~:$ls /etc/init.d/ASIP\*

/etc/init.d/ASIPSLicServ

asip04@i80asip:~:$ls /etc/rc.d/rc3.d/S99ASIPS\*

/etc/rc.d/rc3.d/S99ASIPSLicServ

asip04@i80asip:~:$ls /usr/local/ASIP\*

ASIPmeister\_145C.lic ASIPSLicServ\_err.log ASIPSLicServ.jar ASIPSLicServ.log ASIPSLicServ.pid commons-daemon-1.0.7.jar jsvc

asip04@i80asip:~:$

1. Manually start server. License server starts every time when the machine boots. You may start the license server manually by service command.

# service ASIPSLicServ start

[asip04@i80asip init.d]# service ASIPSLicServ start

[asip04@i80asip init.d]#

1. Trouble Shooting. Log files are saved in the License Server installation directory. Contents of /usr/local/ASIPSLicServ/ASIPSLicServ\_err.log after starting license are:

Still running according to PID file /usr/local/ASIPSLicServ/ASIPSLicServ.pid, PID is 3227 Service exit with a return value of 122

## Starting ASIPmeister

1. Setting Environment Variables to run ASIPmeister

export ASIPS\_LICENSE=29000@i80asip.ira.uka.de

export PATH=/usr/java/jre1.6.0\_45/bin:$PATH

export PATH=/AM/ASIPmeister/bin:$PATH

export ASIP\_APDEV\_SRCROOT=/home/asip04/WS17/mkimg/AM\_tools

export ASIPmeister\_HOME=/AM/ASIPmeister

export ASIPmeister\_Home=/AM/ASIPmeister

1. Starting ASIP Meister

asip04@i80pc57:~:$. ~/.bashrc.user

asip04@i80pc57:~:$ASIPmeister

# Using ASIP Meister

## What is ASIP Meister?

# ModelSim

## Tutorial

# Validating the CPU in Prototyping Hardware

# Power Estimation

## Different Types of Power

# Extended GCC Compiler

1. .bashrc.user
   1. Local license
      1. Floating License
2. Sequence of Steps, Issues, & Solutions

| **Sr.** | **Task** | **Problem/Issues** | **Solutions** | **Date** | **Status** |
| --- | --- | --- | --- | --- | --- |
| 1 | Started Correspondence |  |  | 12.12.2016 | √ |
| 2 | Purchase of ASIPmeister Version 2.3  dated July 2008 |  |  | 14.01.2017 | √ |
| 3 | Test 1: Installation on Servers (i80pdc) with Floating License provided for i80pdc | gives the error:   1. "environment variable not defined" 2. Exception in thread "main" java.lang.NumberFormatException: multiple point | As suggested by ASIP team,  CentOS 5 installed on i80pc57  jre-6u45-linux-i586-rpm.bin is used. | 26.02.2017 | √ |
| 4 | Test 1a: Installation on i80pc06 with Floating License provided for i80pdc | gives the same errors   1. "environment variable not defined" 2. Exception in thread "main" java.lang.NumberFormatException: multiple point | As suggested by ASIP team,  CentOS 5 installed on i80pc57  jre-6u45-linux-i586-rpm.bin is used. | 14.03.2017 | √ |
| 5 | Test 2: Installation on Centos 5 Machine with the same Floating License | gives the error:   1. Exception in thread "main" java.lang.NumberFormatException: multiple point | As suggested by ASIP team,  Try to install first node license on i80pc57, then we can go for floating license | 23.03.2017 | √ |
| 6 | Test 3: Installation on Centos 5 Machine with Node License for i80pc57 | Gives the error that "license period has not started yet" | Tried setting different Language & Date formats but did not succeed. Finally some discrepancies in the License file were found and intimated the ASIP team. | 10.04.2017 | √ |
| 7 | Test 4: Installation on Centos 5 Machine with Newly Generated Node License for i80pc57 | ASIPmeister started successfully. But:  When started exploring RISC\_small.pdb, after completing the "Design Goal & Arch. Design", when I click on "Resource Declaration", it gives the error "FHM Server Error" | ASIP team suggestions:   1. stop SELinux 2. whether you can write and delete some files into /tmp directory 3. Could you check libcrypto library in your system? 4. Yes, It works fine now, after issuing:   $ cd /lib  $ sudo ln -s libcrypto.so.0.9.8e libcrypto.so.4 | 19.04.2017 | √ |
| 8 | Test5: Exploring and Compiler Generation on i80pc57 for RISC\_small.pdb. Just to get familiarized with new tool. | gives the error as  configure: error: no acceptable cc found in $PATH  Error: fault in binutils generation) | Current compiler is just for brownie 32-bit processor | 24.04.2017 | √ |
| 9 | Test6: Exploring and Compiler Generation on i80pc57 for browstd32.pdb | Gives the same error | Yes. You need gcc (host compiler) to compile AM\_STD\_234-2/gcc-4.2.2 (target compiler).  gcc-4.2.2 for intel is preferable version to be used. | 29.04.2017 | √ |
| 10 | Updated Lab Script and all the Sessions |  |  | 04.05.2017 | √ |
| 11 | Installation of gcc on i80pc57 | Could not install gcc repositories, they removed from the main server | ASIP team shared there CentOS5 DVD. Martin installed gcc from this on i80pc57. | 08.05.2017 | √ |
| 12 | Test7: Exploring and Compiler Generation on i80pc57 for browstd32.pdb with gcc installed | Compiler Generation Problem Continues due to some missing packages | The packages gdb,ncurses-devel,texi2html, texinfo, are installed to successfully compile the ASIP Tools binutils-2.16.1 gcc-4.2.2 gdb-6.4 newlib-1.14.0 | 08.05.2017 | √ |
| 13 | Test8: Exploring and Compiler Generation on i80pc57 for browstd32.pdb with gcc and pre-requisite packages installed | Done.  Starting compiler description generation.  …  Successfully Generated.  Starting compiler description generation.  …  Newlib was generated successfully.  Successfully Generated. |  | 08.05.2017 | √ |
| 14 | Test9: compiling, testing and memory file generation for the example files for browstd32.pdb | done |  | 08.05.2017 | √ |
| 15 | Test10: Setting up a Similar License Server like i80pc57 (CentOS-5) | Done.  Arranged a new virtual machine i80asip, for which a new floating license was arranged from ASIP team, and tested using i80pc57 client. |  | 12.05.2017 | √ |
| 16 | Test10: Simulation of provided example t001.asm with ModelSim for browstd32.pdb. Assembling and TestData.IM & DM generation | done |  | 20.05.2017 | √ |
| 17 | Comparison between old DLX Processor and Brownie32 processor using their datasheets by simulating small examples | Instruction names and formats are very different  Brownie support forwarding and zero branch slot, only one load delay slot  Different interrupt vectors spaces |  | 27.05.2017 | √ |
| 18 | Implementing the difference of Brownie32 processor in dlxsim, like:   1. RR type 2. RI Type 3. MA Type 4. JP type 5. JPR Type 6. SP Type 7. RT Type 8. .org directive 9. New instructions like LSOI, EXBW, EXHW, RETI, TRAP 10. Writing small codes for different type of instructions 11. Simulating and verifying all the instructions |  |  | 10.06.2017 | √ |
| 19 | Implementing the difference of Brownie32 processor in dlxsim, like:   1. Forwarding, 2. Zero delay slot for Branch 3. One load delay slot 4. Updating the stats, and step commands 5. Simulating and verifying these features | Labels for branch and jump is to be calculated manually | May be, use a script to put a local label inform of all branch and jump instructions and then recalculate the offset. | 17.06.2017 | √ |
| 20 | Writing small codes for different type of instructions and simulating it in ModelSim. Verifying the TestData.IM and DM and from dlxsim |  |  | 24.06.2017 | √ |
| 21 | Studying and finding the difference between memory interfaces of old and new processor, because it is important to implement ModelSim testbench and Xilinx Framework.  Understanding the flow of existing scripts by Lars. | There is different number of I/Os for two processors, noted it, and have to write MemoryMapper.vhd accordingly |  | 01.07.2017 | √ |
| 22 | Writing up MemoryMapper.vhd for ModelSim and Xilinx  Adding directives into dlxsim which are used inside the compiler generated code |  |  | 02-15.07.2017 |  |
| 23 | Test the bubble sort and ADPCM applications with ModelSim and Xilinx.  Note any discrepancies, number of NOPS required and so on and test again.  Modify our scripts accordingly |  |  | 16-30.07.2017 |  |
| 24 | Change all current exercises according to new setup and test them |  |  | 02-15.08.2017 |  |
| 25 | Creating a alternative to mkimg script, and folders that will be used in parallel to the old setup |  |  | 16-30.08.2017 |  |
| 26 | Updating the lab manual and sessions according to new setup |  |  | 02-15.09.2017 |  |
| 27 | Preparing the machines and lab setup for the students |  |  | 16-30.09.2017 |  |
|  |  |  |  |  |  |
|  | Tests on Audio |  |  |  |  |
|  | Tests on LCD debugging |  |  |  |  |
|  | Started new peripheral board design |  |  |  |  |
|  | Successfully tested the new peripheral board |  |  |  |  |
|  |  |  |  |  |  |
|  | Everything including LCD, Audio and new peripheral board is working |  |  | 05.12.2017 |  |
|  | Try to access ASIPmeister just for testing | The system was not accessible | Martin told that the Hard Disk Controller of i80pc57 is crashed. He backed up the hard disk. And installed it on my PC as a Virtual Machine | 06.06.2018 |  |
|  | Trying to login using asip04 account | Did not log in | Martin helped to map and mount all the students account to i80pc57 again | 17.07.2018 |  |
|  | Run ASIPmeister | Could not run. I80asip VM was turned off and the ASIPmeister license on i80asip was not running. | Turned on i80asip and started the ASIPmeister floating license from i80asip. | 17.07.2018 |  |

Implemented new instruction types, and instruction formats from Brownie-32 in DLX Sim.

Implemented the forwarding, and removed pipeline delay of four.

The programs were working in ModelSim. But it is been not loaded into the BRAM. (RAM or ROM). Then used ChipScope Pro to know that RAM needs an inverted clock in Xilinx.

The whole framework was converted to ISE ISIM simulator to have system simulation including the RAM and ROM. These memories require .COE or .MIF files for initialization, which were generated as was the case for TESTDATA.DM/IM. The ModelSim framework does not include the ROM and RAM instead, it just use an array to emulate these memories.

There was another issue regarding that data2mem utility was not able to map data from TESTDATA.\* at correct locations using BLOCKRAM.mem file. The problem was in generateing the Block RAM and ROM.

ROM: Alogirthm=0, c\_primitive\_type=1 > 2bit width

Interrupt space in brownie is shifted.

Stack point is shifted

ISE Xilinx: The reset is handled properly and the program is ended when reached a specific address.

CLOCK for the I2C was missing. Generated clock using aother DLL

Dlx -pd1

Requires no NOP for dependencies

Jump requires NOP

Branch requires NOP

Load/Store requires NOP

-pd4(pipelined)

Requires 4 NOP for dependencies/pipeline

Brownie –pf0

Same like pd1 but requires no NOP for dependencies, requires NOP for jump and branch. But no NOP for load/store

Brownie –pf1

Same like –pd4 but it has forwarding, no branch slots, no jumps, load/store delay slots

Dlxsim\_br

Dlxsimbr Directory:

Eclipse>New Project> make file project with existing code

Project Name = dlxsim

Location=ws17/dlxsimbr

Finish

Build=Ctrl+B

Error: make all error

Project Propertioes > c/c++ build > build settings> build command = make, Behavior> build (incremental build = empty, clean = clean

Cd WS17/dlxsimbr/

Dlxsimbr –da0 –pf1

Dlxsom > load –pf1 –fTestProgs/1\_arith.s

For i80labpc10: Makefiel>LDFLAGS=/usr/lib/libcurses.so-lreadline-line

For i80labpc57: Makefiel>LDFLAGS=/usr/lib/libcurses.so.5-lreadline-line