How to build the GUPS bitfile from the included PDT tarfile and GUPS personality tarfile.

Prerequisite:

- Merlin Driver is installed

Required:

- pdk2_XXXXXXXX.tgz (PDT source tree – PDK2 & HT source tree)
- gups.openht-2.0-b07db3d.tar.gz (gups/ht personality source tree)

1) Untar both tarballs in these different directories.

   /opt/convey/pdk2

   /opt/convey/gups

2) Go into the gups directory and make the following updates:
   - Makefile :
     export CNY_PDK = **/opt/convey/pdk2**
     export CNY_PDK_PLATFORM = **ma-400 #leave this at ma-100 if building for the ma-100**

   - ln –fs hpccinf.txt.single hpccinf.txt

3) Source the PDT's settings from inside the GUPS directory so it knows where all the PDT files are located:

   gups> source ../pdk2/latest/settings.csh

4) Setup your environment for Altera licensing and building. (setenv LM_LICENCSE_FILE blah; setenv PATH <altera_path>:$PATH)

5) Launch the personality build command from the gups directory.

   gups> make pers

6) Upon successful completion your bitfile will be packaged up in the /opt/convey/gups/lib_pers/ht.released/<date> directory

   You can then proceed to load it into the flash using
   wxcontrol <coproc physical dev id> --pers2flash [path to tgz | path to .hexout file]

   where coproc physical dev id is something like wxpfwa0 which can be found by running wxinfo:
   [root@raptor3 gups_06172015.pdk_06162015.m1]# wxinfo
   Logical Physical State Arch CoProc# Mem Size Owner Signature
   wxcp0 **wxpfwa0** Enabled MERLIN_A1 0 4G/4G 65000.1.1.8.0

7) Build the application executable from the gups directory.

   gups> make app

8) Now you must power cycle the system in order for the flash bitfile to be loaded onto the FPGA.

- ipmitool power cycle

9) After the power cycle, in order to run the gups application you will need to do the following:
   - cd /opt/convey/gups
   - setenv CNY_PERSONALITY_PATH /opt/convey/gups/lib_pers/personalities

   this personalities directory should have been created for you during the build/packaging process, and has a both a link to your gups bitfile as well as an entry in the customdb which the driver uses to resolve the personality name or number to the bitfile.

   [root@raptor3 personalities]# ls

   65000.1.1.8.0 customdb

   - ls –la 65000.1.1.8.0/

   lrwxrwxrwx 1 root root 41 Jun 17 15:14 ae_fpga.tgz ->
   ../../ht.released/15_06_17_11/ae_fpga.tgz

   - cat customdb

   65000.1.1.8.0,65000

   The 65000.1.1.**8**.0 is the architecture for the ma-100. A 65000.1.1.**9**.0 is the architecture for the ma-400.

   Then execute the application.

   gups> ./app

   Check the results.

   gups> grep –i average hpccout.txt

   Average GUP/s 0.164570

   Which is .164570 Billion Updates per second – this is the expected performance.