

FINAL REPORT OF THE POPLOG PORT TO DARWIN

BACKGROUND

The Poplog port to Darwin was proposed as a preliminary stage in porting poplog to OS X. The goal in this stage, was to modify the system calls and to rebuild Poplog on a system with the same features of OS X. These files will be merged with some other files modified to generate assembly code that can be recognized by Mac OS X, the source code will then be cross-compiled on a machine running Poplog and the generated assembly files transferred to Mac OS X to rebuild the system on it.

GENERAL OBJECTIVE OF THE DOCUMENT

To notify the results obtained in the Poplog port to Darwin stage.

PORT FEATURES

Target Machine: Open Darwin 7.2.1

Host Machine: Linux Red Hat 9.0

Files Reviewed in the Host Machine:

Note: The \$popsrc directory is poplog/v15.53e/pop/src and the \$popexternlib directory is poplog/v15.53e/pop/extern/lib.

File Name	Directory	Modified Aspects
sysdefs.p	\$popsrc/syscomp/	Options for Darwin Os (Name, Posix version, Type, etc) were added.
os_common.p	\$popsrc/syscomp/	Library definitions and assembler command.
asmout.p	\$popsrc/syscomp/	The right shift instruction was changed for a sum instruction, so that the generated assembler code could be compiled on Darwin.
genproc.p	\$popsrc/syscomp/	The right character to specify comments in Darwin Assembler was added.
external.ph	\$popsrc/	Darwin dynamic libraries options.
devio.p	\$popsrc/	Darwin Termio options and getpgrp system call for Darwin 7.2.1
pop_malloc_min_alloc.p	\$popsrc/	none
sig_stop.p	\$popsrc/	none
sys_async_input.p	\$popsrc/	none
syscreate.p	\$popsrc/	none
sysdate.p	\$popsrc/	Recognition of the <u>time_eval</u> structure on Darwin
sysdelete.p	\$popsrc/	none
sysexecute.p	\$popsrc/	none

sys_file_move.p	\$popsrc/	Recognition of the <i>rename</i> system call like Berkeley.
sysfileok.p	\$popsrc/	MAXNAMLEN value for Darwin 7.2.1
sys_file_stat.p	\$popsrc/	none
sysfork.p	\$popsrc/	none
sys_host_id.p	\$popsrc/	The <i>gethostid</i> system call on Darwin 7.2.1 is now accepted.
sys_host_name.p	\$popsrc/	none
sys_input_waiting.p	\$popsrc/	Darwin 7.2.1 system calls that check if there are any devices waiting for an input were modified like the equivalent system calls in Linux.
sys_io_control.p	\$popsrc/	none
sysio.p	\$popsrc/	none
sysisdirectory.p	\$popsrc/	none
syslink.p	\$popsrc/	Accepting the <i>syslink</i> system call on Darwin 7.2.1
sysobey.p	\$popsrc/	none
sysopen.p	\$popsrc/	Accepting the <i>readlink</i> system call on Darwin 7.2.1
syspipe.p	\$popsrc/	none
sys_real_time.p	\$popsrc/	none
systemtime.p	\$popsrc/	none
sysutil.p	\$popsrc/	To calculate the <i>USR_STACK</i> macro, and to recognize system calls <i>getrlimit</i> , <i>mprotect</i> , <i>getpwnam</i> and <i>getpwid</i> system calls on Darwin 7.2.1.
termcap.p	\$popsrc/	To accept the output speed like the value in its <i>TMIO_OSPEED</i> attribute on Darwin 7.2.1
unixdefs.ph	\$popsrc/	Values for the <i>Stabs</i> , <i>Direct</i> and <i>Timezone</i> structures on Darwin 7.2.1
unix_dir.p	\$popsrc/	To accept the <i>opendir</i> , <i>closedir</i> and <i>readdir</i> system calls on Darwin 7.2.1
unixextern.p	\$popsrc/	none
unixfmatch.p	\$popsrc/	none
unix_select.ph	\$popsrc/	The <i>fd_mask</i> definition and <i>FD_SIZE</i> macro value for Darwin 7.2.1 were added.
unix_tty.ph	\$popsrc/	The values for the respective macros according to the <i>termios.h</i> file on Darwin 7.2.1 were added.
amisc.s	\$popsrc/	The <i>sscab</i> instruction was changed for the <i>scasb</i> instruction.
amove.s	\$popsrc/	The <i>scmpb</i> , <i>scmpw</i> , <i>scmpl</i> , <i>smovl</i> , <i>smovb</i> , <i>sstob</i> , <i>sstol</i> instruction were changed for the <i>cmpsb</i> , <i>cmpdw</i> , <i>movsl</i> , <i>movsb</i> , <i>stosb</i> and <i>stosl</i> respectively.

aprocess.s	\$popsrc/	The <i>smovl</i> , <i>sstol</i> and <i>slodl</i> instructions were replaced for the <i>movsl</i> , <i>stosl</i> and <i>lodsl</i> respectively
aprolog.s	\$popsrc/	The <i>slodl</i> instruction assembler was changed for the <i>lodsl</i> instruction.
aarith.s	\$popsrc/	The <i>slodl</i> and <i>sstol</i> instructions were changed for the <i>lodsl</i> and <i>stosl</i> instructions.

Files Modified in the Target Machine

File Name	Directory	Modified Aspects
c_core.h	\$popexternlib	The UNIX macro is defined if the APPLE_CC macro is defined (this macro is defined if the Operating System is Mac OS X or Darwin).
c_core.c	\$popexternlib	If the macro APPLE_CC was defined then the same <code>_pop_errsig_handler</code> procedure of Linux is used.
mklibpop	\$popexternlib	The gcc flags according to Darwin and the recognition of the <i>getpgrp</i> system call without parameters were added.

CONCLUSION

Although the preliminary stages to build the Poplog system on Darwin Operating System were achieved, the final goal was not satisfied due to a problem in the Darwin assembler. Therefore, the Poplog Directory and its modified source code are attached to this document, but not the port itself.