ODE Tools

ODEMAKE	Adam de Boor's pmake. originally relased on BSD Reno tape. Modified by OSF.
GENPATH	expands a pathname releative to SOURCEBASE, SOURCEDIR and OBJECTDIR,
MKPATH	creates any directories missing in path.
WH	searches along a path
MD	creates relative dependencies from absolute ones.
RELEASE	Used to release programs

All tools are built to not use rc-files

Rules files

Sources in buildtools/ode/mk
Released to lib/mk

osf.rules.mk	e.g. .include <${RULES_MK}>
osf.std.mk	parameterized variable definitions
osf.mach3.mk	local customizations
osf.lib.mk	rules to build libraries
osf.obj.mk	compilation rules
osf.prog.mk	linking rules
osf.mig.mk	mig rules
osf.depend.mk	rules to generate dependencies
sys.mk	standard BSD file. Not used.

Useful targets

cd to directory containing sources

default target	build_all
export_all	does export pass only
export_<file>	builds and exports <file>
<program>	builds <program>
<file>.o	builds .o file
install_all	needs TOSTAGE=/....

MK targets

cd src/mk/kernel

kernel	exports machine/*.h changes, builds bootstrap, checks cofiguration
kernel_only	only builds kernel

cd src/mk/kernel/<CONFIG>

<file>.o	compiles a file
relink	relinks kernel **without** checking dependencies

UX targets

cd src/ux/server

vmunix	Exports machine dependencies, checks configuration and builds server

Debugging Targets

print_env	does a printenv
print_makevars	prints make variables that I find useful

Makeconf

CONFIG	configuration options for ux and mk
MAKEOBJDIR	object directory used by odemake defined as a function of OBJECTDIR
MAKESRCPATH	base of master sources if shadowing. Defined as a function of SOURCEDIR
MAKECONF	Defined by *odemake* as the absolute pathname of the *Makeconf* file that it is using.
MAKETOP	Defined by *odemake* as the relative pathname from the directory in which *odemake* was invoked to the directory containing the *Makeconf* file.

Search path variables

VPATH
- search path for sources and dependencies
- set in Makefiles
- expanded via genpath

INCDIRS and LIBDIRS
- set by *setvar* - local export directory and master or system release area
- not expanded

INCFLAGS and LIBFLAGS
- set in Makefiles
- expanded by genpath

CPATH, DEFCPATH
- set in setvar.csh
- Default path, no dependencies generated

LPATH
- set in setvar.csh
- used for crt0.o and migcom

To dynamically modify flags

DEF_FLAGS
- set conditionally in *osf.mach3.mk*

${.TARGET}_FLAGS or FLAGS
- set in the Makefile

${.TARGET}_ENV or ENV
- set in the environment

${.TARGET}_ARGS or ARGS
- set on the command line

For example: odemake CARGS=-v LDARGS=-v

Useful switches

-r don't include sys.mk

-j <n> run <n> jobs in parallel

CONFIG=STD+WS-lineno
to change mk or ux configuration

TOSTAGE=/afs/cs/project/mach3/latest/release/@sys
to install targets

-d information about directory searching

-d mt making targets

-d v all variable assigments (very verbose)

Read more about it

release/@sys/man/man1/make.1

release/@sys/man/man1/setvar.1

release/@sys/man/man5/makefiles.5

/afs/cs/project/mach/public/doc/unpublished/
pmake.tutorial.ps

/afs/cs/project/mach/public/doc/notes/
mach3_build.{ps,doc}