Sun OpenBoot Parameters and commands

About Openboot :
The firmware in Sun's boot PROM is called OpenBoot. The main features of openboot are – initial program loading , & debugging features to assist kernel debugging. OpenBoot supports plug-in device drivers which are written in language Forth. This plug in feature allows Sun or any third-party vendors to develop new boot devices but without making any changes to boot PROM.

Accessing the openboot
Openboot console can be accessed by any of the following means . Be careful not to do this on a live system as you might end up in rebooting the server .

1. Rebooting a system , if auto-boot is not set to true rebooted system returns to OK> prompt which is openboot prompt

2. Pressing the keys L1 and A or STOP A , at the same time will bring you to the OpenBoot system. You will see the display
Type b (boot), c (continued), or n (new command mode)
>
Typing b boots the operating system . Typing c resumes the execution of a halted program. Typing n gets you to the Forth monitor, and the prompt will change to ok.

OpenBoot Parameters & commands

Following two tables gives a list of Openboot parameters & commands

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General
printenv   Display all variables and current   values.   **setenv <variable>**   Set variable to the given   value.   **set-default <variable>**   Reset the value of *variable*   to the factory default.   **set-defaults**   Reset variable values to the factory   defaults.
BOOT

auto-boot?=true
System directly boots without
stopping at OK> after power on.
boot-command=boot
command passed on to auto boot if true.
boot-file:
File for booting Solaris , default is empty string .This
variable contains the default boot arguments that are used when
OpenBoot is not in diagnostic mode.
boot-device=disk net
Device
to boot from , multiple devices can be specified using spaces .Other
devices will be selected if first device fails.

Network

tpe-link-test?
=true
Tests the UTP Ethernet port
link and flashes error messages if there is no network link.
local-mac-address?
=false
Use the system's MAC address
instead of network card's MAC address .
Ports
ttyb-rts-dtr-off
=false
ttyb-ignore-cd
=true
ttya-rts-dtr-off
=false
ttya-ignore-cd
=true
ttyb-mode
=9600,8,n,1,-
ttya-mode
=9600,8,n,1,-

DIAGNOSTICS

diag-file:
boot file for diagnostic mode This
variable contains the default diagnostic mode boot arguments.
diag-device=net
booting device in diagnostic mode.
diag-switch?=false
If true system runs in diagnostic
mode.
diag-level=max
Level for diagnostics information , can
be min , max and minus . There
may be additional platform specific values. If set to off, POST is
not called. The default value is platform-dependent.

INPUT/OUTPUT

input-device=keyboard
Input device used at power-on (
keyboard, ttya, or ttyb).
keyboard-click?=false
keyboard click sound
keymap:
For custom keyboards
output-device=screen
Output device used at power-on
(screen,
ttya, or ttyb).
ansi-terminal?=true
controls the behavior of the
terminal emulator.
The value false causes the terminal emulator to stop
interpreting ANSI escape sequences resulting in echoing them
to the output device.
screen-#columns=80
screen-#rows=34
Columns and Rows of display screen.

SCSI

scsi-initiator-id=7
SCSI bus address of host adapter,
range 0-7. Used in shared scsi storage envornment.

Bus

pcia-probe-list=1,2,3,4
pcib-probe-list=1,2,3
`sbus-probe-list=2,0,1,3`
Order to probe pci and sbus
buses for devices.

NVram

use-nvramrc?=false
If true , execute commands in
NVRAMRC during sys-
tem start-up. Defaults to false .
nvramrc
Displays contents of NVRAM

Security

security-mode=none
Firmware security level (options:
none, command ,
or full). If set to command or full, system will prompt for PROM
security password.

Security password setting when
security mode is command or full.
security-#badlogins=0
No. of bad security login .
`password` **Set**
security-password

oem

oem-logo=**false**
oem-logo?=**false**
oem-banner?=**false**
mfg-mode=off

Diagnostics

banner
this command shows the following
systems hardware information : Model, architecture, processor, keyboard, openboot
version, Serial no. Ethernet address & host id.
test floppy – test floppy disk drive
test net - test network loop backs
test scsi – test scsi interface
test-all   test for all devices with self test
method
watch-clock
Show ticks of real-time clock
watch-net
Monitor network broadcast packets
watch-net-all
Monitor broadcast packets on all net
interfaces
probe-scsi
Show attached SCSI devices
probe-scsi-all
Show attached SCSI devices for all
host adapters- internal & external.

boot

boot – boot kernel from default
device.
Factory default is to boot
from DISK if present, otherwise from NET.
boot net – boot kernel from network
boot cdrom – boot kernel from CD-ROM
boot disk1:h - boot from disk1 partition h
boot tape – boot default file from tape
boot
disk myunix -as – boot myunix from disk with
flags "-as"

DEVALIAS

```
ok>show-devs
ok cd /pci@1f,4000/scsi@3
ok .properties
ok ls
f00809d8 tape
f007ecdc disk
ok .speed
```
CPU Speed : 200.00MHz
UPA Speed : 100.00MHz
PCI Bus A : 66Mhz
PCI Bus B : 33Mhz

Useful
commands at OK prompt.

nvedit Start
nvramrc line editor using a temporary edit buffer
use-nvramrc? If this variable is true , Contents of nvramrc is
executed automatically. Set using setenv command
nvrun Execute the contents of nvedit edit buffer
nvstore Save the contents of the nvedit buffer into NVRAM
nvrecover Recover nvramrc after a set-defaults
nvalias <name> <path> Edit nvramrc to include
devalias called 'name'
nvunalias <name> Edit nvramrc to remove devalias called
'name'

Key Sequences
These commands are disabled if the PROM security is on. Also, if
your system has full security enabled, you cannot apply any of the
suggested commands unless you have the password to get to the ok
prompt.
Stop – Bypass POST. This command does not depend on
security-mode. (Note: some systems bypass POST as a default; in
such cases, use `Stop-D` to
start POST.)
Stop-A
Abort.
Stop-D -
Enter diagnostic mode (set `diag-switch?` to `true`).
Stop-F -

Enter Forth on TTYA instead of probing. Use `exit` to continue with the initialization sequence. Useful if hardware is broken.

Stop-N

Reset NVRAM contents to default values.