Broadcom NetXtreme Ethernet Adapter

Diagnostic User's Guide

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1 Introduction

This program runs in two modes: Manufacturing mode and Engineering mode. The mode is determined with the command line option or the configuration file. When the program is running in manufacturing mode, it starts to run all tests in the configuration. If it detects an error, it displays an error and exits the program. When the program is in engineering mode, it prompts user to enter commands. The commands are explained in the later chapters. This document provides the information on configuration file specification, command line options and engineering diagnostic commands on Broadcom NetXtreme Ethernet adapter, in particular to check out the functionality of the BCM5700-5705 and its related components. In general, this program has a set of default configuration. It is overwritten by configuration file. The command line option overwrites both default and the configuration files.

2 Prerequisites

The engineering diagnostic is executed under DOS protected mode or under Intel's Extensible Firmware Interface (EFI) on Intel IA64 systems.

OS: Dos 6.22 or EFI V1.10.14.62 and newer

Software: b57diag.exe for DOS and b57diag64.efi for EFI (version 7.45 and newer)

Input File List: The following files should be found in the same location of the b57diag.

ee57xxyy.yy (TX & RX CPUs Firmware file, xx chip type, yy version number)

eeprom.bin (Serial EEPROM/FLASH config input file)

cpu.bin, cpu05.bin, cpu14a.bin, cpu14b.bin or cpusj.bin (CPU Instruction test)

cpudiag.bin or cpudg05.bin (CPU Accessing test)

flshdiag.bin, flashdg05.bin flashdg 14a.bin, flashdg 14b.bin, flashdgsj.bin, flahdg5x.bin

ump14a.bin or ump14b.bin

config.sys (not required for EFI)

himem.sys (not required for EFI)

Output File List:

The following file may be generated in run time depending execution option(s).

diagcfg.bin

3 Diagnostic Tests

The tests are divided into four groups: Register Tests, Memory Tests, Miscellaneous Tests, and Data Tests. They numbered as group 'A', 'B', 'C', 'D', and 'E'.

3.1 Test Names

Group A.

A1. Indirect Register Test
A2. Control Register Test
A3. Interrupt Test
A4. BIST
A5. PCI Cfg Register Test
A6. Serial Number Reg Test
A5. Power Register Test

Groupt B.

B1. Scratch Pad Test
B2. BD SRAM Test
B3. DMA SRAM Test
B4. MBUF SRAM Test
B5. MBUF SRAM via DMA Test
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Group C.

C1. EEPROM Test
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C4. MII Test
C5. VPD Test
C6. ASF Test
C7. ROM Expansion Test
C8. CPU Fetch Test

Group D.

D1. Mac Loopback Test
D2. Phy Loopback Test
D3. RJ45 Loopback Test
D4. 1G False Carrier Test
D5. MII Miscellaneous Test
D6. MSI Test

Group E.

E1. 1G Wire Open/Short (** ZERO LEN LB RJ45 **) Test

3.2 Error Codes

The Error Codes are presented in Section 9 - ERROR MESSAGES.

3.3 Test Descriptions

3.3.1 A1. Indirect Register Test

Command: regtest -i

Function: Using indirect addressing method, writing increment data into MAC hash Register table and read back for verification. The memory read/write is done 100 times while increment test data.

Default: Enabled

3.3.2 A2. Control Register Test

Command: regtest

Function: Each Register specified in the configuration contents read only bit and read/write bit defines. The test writing zero and one into the test bits to insure the read only bits are not changed, and read/write bits are changed accordingly.

Default: Enabled.

3.3.3 A3. Interrupt Test

Command: intrtest

Function: This test verifies the interrupt functionality. It enables interrupt and waits for interrupt to occur. It waits for 500ms and reports error if could not generate interrupts.

Default: Enabled

3.3.4 A4. BIST

Command: bist

Function: Hardware Built-In-Self-Test (BIST). This test initiates BIST, and wait for the test result returned by hardware.

Default: Enabled

3.3.5 A5. PCI Cfg Register Test

Command: pcicfg

Function: This test verifies the access integrity of the PCI config registers.

Default: Enabled

3.3.6 A6. Serial Number Reg Test

Command: serial

Function: Tests the PCI-E Serial Number capabilities registers on chips that support the Serial Number capability. This command is supported on 5751Cx, 5755, 5787.

Default: Enabled.

3.3.7 A7. Power Register Test

Command: power

Function: Tests the PCI-E Power capabilities registers on chips that support the Power capability. This command is supported on 5751Cx, 5755, 5787.

Default: Enabled.

3.3.8 B1. Scratch Pad Test

Command: memtest -s

Function: This test tests the scratch pad SRAM on board. The following tests are performed:

Data Pattern Test: Write test data into SRAM, read back to ensure data is correct. The test data used is 0x00000000, 0xffffffff, 0xaa55aa55, and 0x55aa55aa.

Alternate Data Pattern Test: Write test data into SRAM. Write complement test data into next address. Read back both data to insure the data is correct. After the test, the program reads back data one more time to insure the data stays correct. The test data used is 0x00000000, 0xffffffff, 0xaa55aa55, and 0x55aa55aa.

Address Test: Write each address with unique increment data. Read back data to insure data is correct. After fill the entire data with the unique data, the program reads back data again to insure data stays the same.

WalkingOne bit Test: For each address. Data one is written and read back for testing. Then shift the data left one bit, so the data becomes two and do the same test again. It repeats for 32 times until the test bit is shifted out of test data. The same is test is repeated for entire test range.

Pseudo Random Data Test: A pre-calculated pseudo random data is used to write a unique data into each test RAM. After the first pass the test, the program reads back one more time to insure data stays correct.

Default: Enabled

3.3.9 B2. BD SRAM Test

Command: memtest -b

Function: This test tests the BD SRAM. This performs exact the same way of testing as described in B1. Scratch Pad Test.

Default: Enabled

3.3.10 B3. DMA SRAM Test

Command: memtest -d

Function: It tests DMA SRAM by performing the tests described in test B1. The Scratch Pad Test.

Default: Enabled

3.3.11 B4. MBUF SRAM Test

Command: memtest -m

Function: It tests DMA SRAM by performing the tests described in test B1. The Scratch Pad Test.

Default: Enabled

3.3.12 B5. MBUF SRAM via DMA Test

Command: memtest -x

Function: Eight test pattern data are used in the test. They are described below. A 0x1000 sized data buffer is used for this test. Before each pattern test, the buffer is initialized and filled with the test pattern. It then, performs size 0x1000 transmit DMA from host buffer to NIC MBUF memory. Verify the data integrity in MBUF against host memory and repeat the DMA for the entire MBUF buffer. Then it performs receive DMA from NIC to host. The 0x1000-byte test buffer is cleared to zero before each receive-DMA. Verify the data integrity and test is repeated for the entire MBUF SRAM range.

Test Pattern	Description
"16 00's 16 FF's"	Full the entire host DMA buffer with 16 bytes of 00's and then 16 bytes of FF's.
"16 FF's 16 0's"	Full the entire host DMA buffer with 16 bytes of 00's and then 16 bytes of FF's.
"32 00's 32 FF's"	Full the entire host DMA buffer with 32 bytes of 00's and then 32 bytes of FF's.

"32 FF's 32 00's"	Full the entire host DMA buffer with 32 bytes of FF's and then 32 bytes of 00's.
"00000000's"	Full the entire host DMA buffer with all zeros.
"FFFFFFFF's"	Full the entire host DMA buffer with all FF's.
"AA55AA55's"	Full the entire host DMA buffer with data 0xAA55AA55.
"55AA55AA's"	Full the entire host DMA buffer with data 0xAA55AA55.

Default: Enabled

3.3.13 B6. External SRAM Test

Command: memtest -e

Function: It tests DMA SRAM by performing the tests described in test B1. The Scratch Pad Test.

Default: Disabled

3.3.14 B7. CPU GPR Test

Command: memtest -b

Function: This test tests the CPU General Purpose Registers. This performs exact the same way of testing as described in B1 over 3 voltages (1.1V, 1.2V, 1.3V).

Default: Enable

3.3.15 C1. EEPROM Test

Command: setest

Function: An increment test data is used in EEPROM test. It fills the test data into the test range and read back to verity the content. After the test, it fills data with zero to clear the memory.

Default: Enabled

3.3.16 C2. CPU Test

Command: cputest

Function: This test opens the file cpu.bin. If file exists and content is good, it loads code to rx and tx CPU and verifies CPU execution.

Default: Enabled

3.3.17 C3. DMA Test

Command: dmatest

Function: Both high and low priorities DMA are tested. It moves data from host memory to NIC SRAM, verifies data, and then moves data back to host memory again to verify data.

Default: Enabled

3.3.18 C4. MII Test

Command: miitest

Function: The function is identical to A2. Control Register Test. Each Register specified in the configuration contents read only bit and read/write bit defines. The test writing zero and one into the test bits to insure the read only bits value are not changed, and read/write bits are changed accordingly.

Default: Enabled.

Default Register table

The test will try to read the register configuration file 'miireg.txt' for the register defines. If the file does not exists, the following table is used:

Offset	R/O Mask	R/W Mask
0x00	0x0000	0x7180
0x02	0xffff	0x0000
0x03	0xffff	0x0000
0x04	0x0000	0xffff
0x05	0xefff	0x0000
0x06	0x0001	0x0000
0x07	0x0800	0xb7ff
0x08	0xffff	0x0000
0x09	0x0000	0xff00
0x0a	0x7c00	0x0000
0x10	0x0000	0xffbf
0x11	0x3300	0x0000
0x19	0x001f	0x0000
0x1e	0x0000	0xffff
0x1f	0x0000	0xffff

3.3.19 C5. VPD Test

Command: vpdtest

Function: It saves the content of VPD first before perform the test. Once it is done, it writes one of the five pattern test data, 0xff, 0xaa, 0x55, increment data, or decrement data, into VPD memory. By default, increment data pattern is used. It writes and reads back the data for the entire test range, and then restores the original content.

Default: Enabled

3.3.20 C6. ASF Test

Command: asftest

Function:m

1. **Reset test.**
   Setting reset bit, poll for self-clearing. Verify reset value of registers.
2. **Event Mapping Test**
   Setting SMB_ATTN bit. By changing ASF_ATTN LOC bits, verify the mapping bits in TX_CPU or RX_CPU event bits.
3. **Counter Test**

   Clear WG_TO, HB_TO, PA_TO, PL_TO, RT_TO bits by setting those bits. Make sure the bits clear.
   Clear Timestamp Counter. Writing a value 1 into each PL, PA, HB, WG, RT counters. Set TSC_EN bit.
   Poll each PA_TO bit and count up to 50 times. Check if PL_TO gets set at the end of 50 times. Continue to count up to 200 times. Check if all other TO bits are set and verify Timestamp Counter is incremented.

Default: Enabled

3.3.21 C7. ROM Expansion Test

Command: romtest

Function: This function tests the ability to enable/disable/access the expansion rom on the device.

Default: Enabled

3.3.22 C8. CPU Fetch Test

Command: cpufetch

Function: Test the CPU instruction-fetch logic a 100 times on 5705 and later devices. The voltage is also varied to 1.1V and 1.3V on devices that support voltage variation.

Default: Enabled

3.3.23 D1. Mac Loopback Test

Command: pkttest -m

Function: This is internal loopback data transmit/receive test. It initializes MAC into internal loopback mode, and transmits 200 packets. The data should be routed back to receive channel and receive by the receive routine, which verifies the integrity of data. One Giga bit rate is used for this test.

Default: Enabled

3.3.24 D2. Phy Loopback Test

Command: pkttest -p

Function: This test is same as D1. Mac Loopback Test except, the data is routed back via physical layer device. One Giga bit rate is used for this test.

Default: Enabled

3.3.25 D3. RJ45 Loopback Test

Command: pkttest -e

Function: This is external loopback test. From the UUT point of view, no loopback mode is configured. The data expected to be routed back by RJ45 loopback connector. 10M/s, 100M/s, and 1000M/s are used for this test.

Default: Disabled

3.3.26 D4. 1G False Carrier Test

Command: None

Function: This test executes the same procedure as test D3 and tests to see if a ***false carrier*** was detected at the end of the test. The –l200, –dispgbpkt, -disppkt and –errlimit command line options were added to configure a number of operational parameters. The details of the command line options are provided in the "COMMAND LINE OPTION PARAMETERS" section.

Default: Disabled

3.3.27 D5. Mll Miscellaneous Test

Command: None

Function: This function tests the auto-polling and phy-interrupt capabilities. These are the functionalities of the phy.

Default: Enabled

3.3.28 D6. MSI Test

Command: msitest

Function: Testing Message Signaled Interrupt Function to see if it handles this interrupt correctly.

Default: Enabled

3.3.29 E1. 1G Wire Open/Short (** ZERO LEN LB RJ45 **) Test

Command: nictest e1

Function: An external loopback test is performed at 10/100/1000 Mbits/s. A zero length loopback connector is placed at the RJ45 connector of the LOM/NIC. After running the loopback test at 1000 Mbits/s the line signal quality is tested order to catch line faults (shorts or opens). This test is used during manufacturing in order to detect board/system build issues on the line/analog side of the Ethernet controller.

Default: Disabled

4 Command line option parameters

When users invoke this program, a set of option parameter can be used to overwrite the configuration file or the default configuration. This section summarizes the options. The options are case sensitive.

-putil Call "b57putil.exe" utility to unload PXE driver.

When "-putil" was entered, diag will call another application "b57putil.exe". "b57putil.exe" will unload PXE and such that diag can have full control over the device. This option switch should be used when updating firmware with "-firmall" option switch via PXE connection.

-seldev <VID_DID> option to select devices that match VID and DID

Use this option to select target devices. Other devices, which have different VIDs and DIDs, will not be selected and listed. This option switch can be used along with "-firm" and "-firmall" option switches.

Example: a:\b57diag –b57eng –seldev 14e411677

-uump <filename> used for field program of UMP firmware

The feature is used to execute a field upgrade of UMP firmware. The firmware is programmed into a/the device/s specified by "-c" option switch if UMP firmware is originally loaded in NVRAM

-dir used for displaying file directory in NVRAM

The feature is used to display file directory in NVRAM. The file directory in the NVRAM of device/s specified by"-c" option switch will be display. If no "-c" option switch has been entered, the file directory of all detected devices will be displayed. In order to log the file directory to a log file, "-l" option switch option must be entered BEFORE "-dir" option switch. Since this is a single function command, the will be no "nictest" or other functions will be preformed.

-pump <file> Program UMP firmware

This option needs to follow the –e and –c options. If this option is entered, the program will retrieve the UMP firmware filename from the command line then it will start programming.

Example:

b57diag –e <code> -c 0 –pump ee5714c1.00

-pump1 <file> Program UMP firmware only

The feature is used to execute a field upgrade of NVRAM to add UMP firmware. The firmware is programmed into a/the device/s specified by "-c" option switch.

-u <value> : Enable/Disable (value = 1/0) UMP in manufacture mode

-piscsi <file> Program ISCSI firmware

This option needs to follow the –e and –c options. If this option is entered, the program will retrieve the ISCSI firmware filename from the command line then it will start programming.

Example:

b57diag –e <code> -c 0 –piscsi iscsi.bin

-piscsicfg Force program ISCSI CFG firmware

If this option is entered, it will force program the ISCSI CFG firmware to NVRAM. This option must be used along with –piscsi option.

Example:

b57diag -e <code> -c 0 -piscsi.bin -piscsicfg

-piscsiprg Force program ISCSI PRG firmware

If this option is entered, it will force program the ISCSI PRG firmware to NVRAM. This option must be used along with –piscsi option.

Example:

b57diag -e <code> -c 0 -piscsi.bin -piscsiprg

-piscsi1 <filename> used for field program of ISCSI firmware

The feature is used to execute a field upgrade of NVRAM to add ISCSI firmware. The firmware is programmed into a/the device/s specified by "-c" option switch.

-smbaddr <hex1> | <hex2> | …….| <hexn> used for programming SMBus Address for ASF/IPMI firmware.

The feature will allow user to program SMBus Address for ASF/IPMI firmware. This switch can take multiple parameters in HEX.

Example
1. -smbaddr A4 (SMB Address = 0xA4)
2. -smbaddr A4 A6 (SMB Address for 1st device=0xA4 and 2nd device = 0xA6)

This switch must be used along with -c option to indicate the target device.
Example:
b57diag -c 0 3 6 -smbaddr A4 A6 A8 -t abcd.
b57diag –c 0 –e b57kia –pasf asf.bin –smbaddr A4 –t abcd

-chksecfg <file_p> | <file_s> will enable the NVRAM SecfgTest

Boot code configuration will be checked against input files. The input files are in the same format as EEPROM.TXT. <file_p> is for the primary port and <file_s> is for the

secondary port. Software will read command from input files and compare with the boot code configuration and return "Passed" or "Failed" accordingly.

Example:

b57diag –chksecfg file_p.txt (for single port devices)

b57diag –chksecfg file_p.txt file_s.txt (for dual port devices)

-nosz disable storing NVRAM and TPM size in NVRAM

Disable the storing of the TPM and NVRAM size in NVRAM when diagnostics is run from the command prompt. Use the "-nosz" option when repeatedly power cycling a system in order not to exhaust the total NVRAM write cycles.

-smbaddr <hex1> | <hex2>…|<hex3> Configure ASF SMBus Addresses.

The option will configure the ASF SMBus Address field in ASF Configuration block.

The option can take multiple parameters in HEX.

Example:
a. -smbaddr 45 (SMB Address = 0x45)
b. -smbaddr 45 6c (SMB Address for 1st device=0x45 and 2nd device = 0x6c)

This option must be used along with -c option. Number of parameters for -smbaddr must be the same as number of devices selected by -c.

Example:
b57diag -c 0 3 6 -smbaddr 6c-6e -t abcd.
b57diag –c 0 –e b57kia –pasf asf.bin –smbaddr 66 –t abcd

-mfct <filename> updates the PCI SSID and SVID

Use this option to modify the PCI SSID and SVID stored in NVRAM. The new SSID and SVID are specified in the file <filename>. The format of <filename> is specified in the "EEPROM.TXT format" section below.

-sil suppresses warning messages of the "-firm" and "-firmall" commands

The warning message, "Boot code file and device type incompatible", produced by the "-firm" and "–firmall" commands is not displayed when the "-sil" command line parameter is entered before the "-firm" and "–firmall" commands. The "-firm" and "-firmall" commands are described below.

-rf <x> selects a reference device to use during external loopback

Use this option with the external loopback test D3 to select a reference card. During the external loopback test the physical loopback can be provided with a RJ45 loopback plug or a CAT5 cable connected to a reference device (which loops back the data).

-lbe g:h:t **define the number of packets to use during external loopback**

Selects the number of packets to send during the external loopback test D3 (g ,h ,t are the gigabit, hundred megabit, and ten megabit packet counts respectively) (default values are g=2000, h=1000, t=600). It is mandatory that all packets counts are entered with this command line option.

-ckdev <xy> **executes diagnostic only x=chip rev and y=metal rev**

If <xy> does not match the device being accessed diagnostics will not execute. Use this option on a production line to verify that only chips of a specific rev are run with diagnostics and all others fail.

-l200 <m200> **controls the number of 200 packets to send**

This option is used for the D4, "1G False Carrier", loopback test. During the test packets are sent out in groups of 200. The user specified <m200> value determines the number of 200 packet groups to send out. The default value is <m200> =50 or 50 groups of 200 packets.

-disppkts **display the packet count during the progress of the test**

This option is used for the D4, "1G False Carrier", loopback test. On long-term test this option is entered to display the packet count every 20,000 packets to let a user know the test is operating normally and not frozen.

-dispgbend **display the packet count at the end of the test**

This option is used for the D4, "1G False Carrier", loopback test. This option is entered to print out the final packet count at the end of the test.

-errlimit <lim> **controls the number of errors seen before the test fails**

This option is used for the D4, "1G False Carrier", loopback test. The default value is <lim> =3.

-pktf0 **packet data pattern is alternating 64 1's and 0's**

This option is used for the D4, "1G False Carrier", loopback test. The default packet data is an incrementing value per byte. With this option the packet data alternate between 64 1's and 0's that are aligned on a 64-bit PCI bus for maximum transitions.

-dids **display chip information such as the PCI DID and VID**

The feature outputs the following information: PCI DID, VID, SDID & SVID; MAC address, Firmware revision, PXE, PXESpd, WOL, ASF, MBA, Bond Rev. This information can be used to verify the setup of a chip after a firmware upgrade.

-elog <filename> an error log file <filename> used to log diagnostics failures

The feature is used to log the failure information of the diagnostics run. When an error occurs if the file <filename> exists it is appended to and if it does not exist it is created. If there are no diagnostics failures then the file in not appended or created. A user abort of the diagnostics testing is log to the error log file <filename>.

-firm <filename> used for field upgrade of bootcode firmware

The feature is used to execute a field upgrade of bootcode firmware. The bootcode firmware is programmed into a/the device/s of a system if there is a match of the PCI DID, VID, SDID & SVID of firmware and device.

-firmall <filename> used for field upgrade for entire NVRAM image

The feature is used to execute a field upgrade of entire NVRAM image. The new NVRAM image is programmed into a/the device/s of a system if there is a match of the PCI DID, VID, SDID & SVID of firmware and device. Media Manufact Region and Media VPD Block in NVRAM will be preserved. If the Advance Firmware, such as ASF and IPMI, is present, the Configuration Block of the firmware will also be preserved. Three addition command line parameters, "-updateasfcfg", "-updatesecfg", "-updateiscsicfg" and "-sil", can be used along with "-firmall" command.

-updateasfcfg update the advance firmware configuration block of NVRAM with that of the NVRAM image provided by "-firmall" command

When "-updateasfcfg" command line parameter is entered before "-firmall" command, the Advance Firmware Configuration Block of the NVRAM will not be preserved. It will get updated by the input file of "-firmall" command. The "-firmall" command is described above.

-updatesecfg update the Media Manufact Region and Media VPD Block, of NVRAM with that of the NVRAM image provided by "-firmall" command

When "-updatesecfg" command line parameter is entered before "-firmall" command, the Meida Manufact Region and Media VPD Block of the NVRAM will not be preserved. They will get updated by the input file of "-firmall" command. The "-firmall" command is described above.

-updateiscsicfg update the ISCSI firmware configuration block of NVRAM with that of the NVRAM image provided by "-firmall" command

When "-updateiscsicfg" command line parameter is entered before "-firmall" command, the ISCSI Firmware Configuration Block of the NVRAM will not be preserved. It will get

updated by the input file of "-firmall" command. The "-firmall" command is described above.

-pipmi <filename> used for field program of IPMI firmware

The feature is used to execute a field upgrade of NVRAM to add IPMI firmware. The firmware is programmed into a/the device/s specified by "-c" option switch.

-uipmi <filename> used for field program of IPMI firmware

The feature is used to execute a field upgrade of IPMI firmware. The firmware is programmed into a/the device/s specified by "-c" option switch if IPMI firmware is originally loaded in NVRAM

-lbspd <spd> selects the line speeds to run test D3 (external loopback)

The external loopback test, by default, runs lines speeds of 10/100/1000 Mbits/s. The user can select to run any combination of the line speeds to run the external loopback via this option. The <spd> parameter specifies the operational speed by using t/h/g for 10/100/1000 Mbits/s respectively. To run test D3 at a 100 Mbits/s line rate the user would enter "b57diag –t abcd –T d3 –lbspd h". To run test D3 at a 100 Mbits/s and 1 Gbit/s the user would enter "b57diag –t abcd –T d3 –lbspd hg".

-hlb <spd> puts the UUT into the host loopback mode

All data sent to the device on the line side will be looped back to the line. This setup can be used to test a specific device with an external tester or can be used with the –tr option to perform a requestor-response test. The optional <spd> parameter specifies the operational speed by using 10/100/1000 for 10/100/1000 Mbits/s respectively. The default value is 1000 Mbits/s.

-tr <pkts> <spd> the UUT transmits and receives data

The UUT will transmit the number of packets specified by <pkts>. The default number of packets transmitted is 1,000,000. The UUT will receive all packets sent to it via the line side. Counts of the transmitted and received packets will be presented to the user. This setup can be used to test a specific device with an external tester or can be used with the –hlb option to perform a requestor-response test. The optional <spd> parameter specifies the operational speed by using 10/100/1000 for 10/100/1000 Mbits/s respectively. The default value is 1000 Mbits/s.

-c <num> specify UUT device number

When more than one device is in the system, the devices are number starting from zero. For example, if there is three devices detected, the device is numbered as 0,1,and 2. In this case, by entered the parameter –c 2 will select the last found device as default UUT.

In manufacture testing mode, by default, all devices are tested; however, if this option is used, only that selected device is tested.

Example: `-c 2`

-l <file> log file

All diagnostic output can be saved in a log file. Type log file name is specified by this option. The default is no log file.

Example: `-l mylogfile.txt`

-w <value> enable WOL programming in manufacture mode

After a successful manufacturing testing, the program will program WOL to either enable or disable mode (<value> = 1/0). By default, the WOL is programmed as disable. Entering value=1 will enable WOL.

When –f is entered, software uses eeprom.bin's content for WOL setting.

When –w 1 is entered with –f, software forces WOL enabled.

-x <value> enable PXE in manufacture mode

After a successful manufacturing testing, the program will program PXE to either enable or disable mode (<value> = 1/0). By default, the PXE is programmed as disable. Entering value=1 will enable PXE.

When –f is entered, software uses eeprom.bin's content for PXE setting.

When –x 1 is entered with –f, software forces PXE enabled.

-t <id> disable test
-T <id> enable test

A certain test is enabled or disabled by default. User can overwrite the enabling status by those options. The test id must start with a letter 'A', 'B', 'C', or 'D' to indication the group and followed by test numbers. Each digit of number represents the sub-test number. For example, if the user wants to disable test A1 and A3. The option –t A13 should be entered. If no test numbers entered, all tests in that group are selected. For the tests not specified, the default setting will be used.

Example `-t A15BC1 -T C4 –t D2`
This disables A1, A5, B1, B2, B3, B4, B5, B6, C1, D2 and enables C4

Default Setting:

Enabled Tests:

A1. Indirect Register Test
A2. Control Register Test
A3. BIST
A4. Interrupt Test
A5. PCI Cfg Register Test
B1. Scratch Pad Test
B2. BD SRAM Test
B3. DMA SRAM Test
B4. MBUF SRAM Test
B5. MBUF SRAM via DMA Test
C1. NVRAM Test
C2. CPU Test
C3. DMA Test
C4. MII Test
C5. VPD Test
C6. ASF Test
C7. ROM Expansion Test
D1. Mac Loopback Test
D2. Phy Loopback Test
D5. MII Miscellaneous Test
D6. MSI Test

Disabled Tests:

B6. External SRAM Test
D3. RJ45 Loopback Test

-I <num> iteration number

Use this option to specify the number of times the tests to be run. The default is run one time. A number zero indicates loop forever. A control-C or control-break key can be used to break the loop. Any error detected will also stop testing after reporting the error.

Example: -I 5
Run tests five times.

-ver display current version number

If this option is entered, it displays the software version number/silkscreen revision and then exits the program.

-e <code> Encryption Code

This option is required to use option -geneep, –f, -m, –n, -mac and -s.

-geneep <file> Generate eeprom.bin file from eeprom.txt

A password is needed to run this option. With this option, it updates the specified eeprom binary file with the specifications defined in eeprom.txt. Please see Section 6.0 EEPROM.TXT format for detailed argument description.

-bus <bus:dev:func> Test UUT location

If only bus number has been specified, the program will test all the UUTs at the specified bus number.

Example: -bus 2.

If bus number and device number have been specified, the program will test all the UUTs with the specified bus number and device number.

Example: -bus 2:4

If bus number, device number and function number have been specified, the program will only test the UUT with the specified bus number, device number and function number.

Example: -bus 2:4:1

This option should NOT be used along with –c option.

-dpmi Use DPMI memory allocation

Use DPMI memory allocation method to allocate memory instead of malloc() or free()

-f <file> Program eeprom.bin

The program programs the content of the specified file into EEPROM before testing.

-m Program MAC address

If this option is entered, the program will prompt user for a new MAC address to be enter/scan before testing starts.

-mac <mac address> Program MAC address from command line

If this option is entered, the program will retrieve MAC address right after the –mac option is entered. The mac address has to be entered in hex and as shown in the following example:

b57diag –mac 001018010203

-fmac <file> Program MAC address from a file

If this option is entered, the program will retrieve MAC address from the specified file before starts testing. If the test passes, the MAC address from the specified file will be

incremented; if not, it will stay unchanged. The text file which contains the MAC address range has the following format and the numbers are in hexadecimal:

mac_addr_pref = xxxxxx => Which is the prefix of the MAC address.

mac_addr_start = xxxxxx => Which is the start of the address range.

mac_addr_end = xxxxxx => Which is the end of the address range.

Example:

mac_addr_pref = 001018

mac_addr_start = 000100

mac_addr_end = 000FFF

Working in conjunction with –f <file> option, this –fmac option is equivalent to option –m.

-n Run program in Manufacturing Loop mode.

With this option, the –I, iteration number option, is ignored. The program will run in manufacturing loop mode. Power on/off is supported. After each test, the program will prompt user to exchange the UUT before starts another testing.

-s Skip eeprom programming process.

With this option, the program will skip the eeprom programming process. However, it will check for the eeprom content and print a warning message if the content is not valid.

The -m and -f combination will create the following behavior:

With both -f and -m:

Program will not validate the eeprom content and go ahead to prompt user for the MAC address. It programs MAC address and EEPROM content and then checks the validity of eeprom content at the end of programming.

```
Loading EEPROM content from eeprom.bin: passed
Programming EEPROM from eeprom.bin....: passed
Checking EEPROM content.............: passed
```

-f only:

Program will check the validity of eeprom. If it is not valid, it will act as a), -f -m option. If it is good, it saves the MAC address from eeprom, program new eeprom binary file content into EEPROM and then restores the original MAC address. It checks the validity of eeprom content once more at the end of programming.

```
Checking EEPROM content.............: passed
Loading EEPROM content from <file>....: passed
Programming EEPROM from <file>........: passed
Checking EEPROM content.............: passed
```

or

```
Checking EEPROM content.............: invalid
Loading EEPROM content from <file>....: passed
Programming EEPROM from <file>........: passed
Checking EEPROM content.............: passed
```

-m only:

Program will check the validity of EEPROM. If it is not valid, it will act as a), -f -m option. If it is good, the program will prompt the user for a new MAC address and program the MAC address only. It checks the validity of EEPROM content once more at the end of programming.

```
Checking EEPROM content.............: passed
Programming MAC address.............: passed
Checking EEPROM content.............: passed
```

or

```
Checking EEPROM content.............: invalid
Loading EEPROM content from <file>....: passed
Programming EEPROM from <file>........: passed
Checking EEPROM content.............: passed
```

d) no -m and -f options

Program will check the validity of EEPROM. If it is not valid, it will act as a), -f -m option. If it is good, it proceeds to normal diagnostics.

```
Checking EEPROM content.............: passed
```

or

```
Checking EEPROM content.............: invalid
Loading EEPROM content from eeprom.bin: passed
Programming EEPROM from eeprom.bin....: passed
Checking EEPROM content.............: passed
```

-pasf <file> **Program ASF firmware**

This option needs to follow the –e and –c options. User has an option to program the ASF firmware from a single bin file that combined all 3 pieces of ASF bin files or from a specified text file that contain the file names of all 3 pieces of ASF bin files.

The program will detect input file type. If it is a single bin file, software will start programming. If the input file is a text file that contains the file name of the 3 pieces of ASF bin files, the program will retrieve the ASF firmware filenames from the specified text file then it will start programming. A sample asf.txt is provided and it has the following format:asf_eep_init = asfeinit.bin

asf_eep_cpua = asfecpua.bin

asf_eep_cpub = asfecpub.bin

-ppxe <file> **Program PXE firmware**

This option needs to follow the –e and –c options. If this option is entered, the program will retrieve the PXE firmware filename from the command line then it will start programming.

Example:

b57diag –e <code> -c 0 –ppxe b57pxe.bin

-mba <value> **Enable/Disable Multiple Boot Agent**

A value of 1 will enable Multiple Boot Agent and a 0 will disable.

Example:

b57diag –mba 0 : Disabling mba.

-mbap <value> **Select Multiple Boot Agent Protocol**

value = 0 : Selecting PXE

value = 1 : Selecting RPL

value = 2 : Selecting BOOTP

Example:

b57diag –mbap 0

-mbas <value> **Select Multiple Boot Agent Speed**

value = 0 : Selecting Auto

value = 1 : Selecting 10HD

value = 2 : Selecting 10FD

value = 3 : Selecting 100HD

value = 4 : Selecting 100FD

Example:

b57diag –mbas 0 : To select Auto speed mode.

-pxes <value> Select Multiple Boot Agent Speed

value = 0 : Selecting Auto

value = 1 : Selecting 10HD

value = 2 : Selecting 10FD

value = 3 : Selecting 100HD

value = 4 : Selecting 100FD

Example:

b57diag –mbas 0 : To select Auto speed mode.

-h : High Resolution (80x50) Video Mode

-p : Print on error

-q : Quick diagnostic mode

-asf <value> : Enable/Disable (value = 1/0) ASF in manufacture mode

-ipmi <value> : Enable/Disable (value = 1/0) IPMI in manufacture mode

-com <value> : enable com port, value(1..4)

-errctrl <c> : On Error -> a:abort w:wait l:loop c:cont s:skip

-ems <size> : Enter external memory size in HEX to test

-findref : Detect reference device

-lbm <n> : Option to set mac loopback packets

-lbp <n> : Option to set phy loopback packets

-lbe <n:n:n> : Option to set external loopback packets, Format: <1000Mbps:100Mbps:10Mbps>

-npol : Select Negative Link Polarity in TBI test

-ref : Run test with reference device

-fail2 : On failure offset the failed message printout

-ctpm : Clears TPM data stored in NVRAM

5 Recover device from corrupt NVAM

When vendor id and/or device id have been modified and B57diag can longer find the device, the following steps can be followed to recover the missing device.

1. Use a PCI scan tool to scan all PCI devices in the system. Find out the vendor id and device id of the missing device.
2. Run B57diag with –seldev option switch to detect the missing device.
   e.g. a:\b57diag –b57eng –seldev 14e411677.
3. In B57diag engineering mode, clear the Magic value in the NVRAM.
   e.g. 0:>sewrite 0 0
4. Reprogram the Bootcode firmware with "seprg" command.
5. Reboot system if needed.

6 EEPROM.TXT format

A set of commands is defined to allow user to change EEPROM.BIN content. To update EEPROM.BIN, user must enter –e <code> -geneep options at the command prompt. A password must be entered to run this option. The 5704, Dual MAC, device use one single eeprom.bin to on both MAC channel configuration. Most of the configurations are shared expect the following commands:

PXE
PXE_SPEED
WOL
ASF

The WOL and ASF setting cannot be enabled on both channel at the same time. For example, if the primary WOL is already enabled, and the user try to enable secondary device's WOL, the primary's WOL setting will be disabled with the following message:

** Warning, primary device WOL is disabled

By default, all commands configure the primary channel until the command MAC is used to select other channel.

Syntax:

<Command> = <Argument>

xx	8-bit hex number
xxxx	16-bit hex number
xxxxxxxx	32-bit hex number
d	decimal number ranges from 0 to 255
string(n)	string of maximum size n.
cc	2 bytes character
n1..n2	a number ranges from n1 to n2.

For Boot Code:

MAC = {0, 1}*
MAC_PREFIX = xx:xx:xx
MAC_ADDRESS = xx:xx:xx:xx:xx:xx
POWER_DISSIPATCHED = d:d:d:d
POWER_CONSUMED = d:d:d:d
SYSTEM_VENDOR_ID = xxxx
SYSTEM_DEVICE_ID = xxxx
SUBSYSTEM_VENDOR_ID = xxxx
SUBSYSTEM_DEVICE_ID = xxxx
PXE = {enable, disable}
PXE_SPEED = {auto, 10hd, 10fd, 100hd, 100fd, 1000fd}
WOL = {enable, disable}
CABLE_SENSE = {enable, disable}
PRODUCT_NAME = string (48)

PART_NUMBER = string (16)
ENGINEERING_CHANGE = string (10)
MANUFACTURING_ID = string (4)
ASSET_TAG = string (16)
FORCE_PCI = {enable, disable}
VOLTAGE_SOURCE = {1.3, 1.8}
LED_MODE = {mac_mode, triple_link /phy_mode1, link_speed/phy_mode2, shared_traffic, shasta_mac, wireless_combo}
MAX_PCI_RETRY = {0..7, auto}
ASF = {enable, disable}
DUAL_MAC_MODE = {normal, mac0, mac1, xbar, swap, swapxbar} **
normal: Ch.0 and Ch. 1 enableds
macb: Ch.0 enabled, Ch.1 disabled
maca: Ch.0 disabled, Ch.1 enabled
xbar: Both MACs shares one function in PCI configuration space
swapxbar :
swap: swap between Ch.0 and Ch1.
MBA_BOOT_PROTOCOL = { pxe, rpl, bootp, iscsi}
MBA_BOOTSTRAP_TYPE = {auto, bbs, int18, int19}
MBA_DELAY_TIME = {0..15}
EXPANSION_ROM_SIZE = {64K, 128K, 256K, 512K, 1M, 2M, 4M, 8M, 16M}
DESIGN_TYPE = {nic, lom}
VENDOR_SPECIFIC0 = string (16)
VENDOR_SPECIFIC1 = string (16)
REVERSE_NWAY = {yes, no}
WOL_LIMIT_10 = {yes, no}
FIBER_WOL_CAPABLE = {yes, no}
CLOCK_RUN_SETTING = {enable, disable}
DISABLE_POWER_SAVING = {yes, no}
HIDE_MBA_SETUP_PROMPT = {enable, disable}
MBA_SETUP_HOT_KEY = {Ctrl-S, Ctrl-B}
ENABLE_AUTO_POWERDOWN = {yes, no}
CAPACITIVE_COUPLING = {enable, disable}
PRI_SMB_ADDR = {Hex(value)}
SEC_SMB_ADDR = {Hex(value)}

*This should only be used to select port for dual ports devices.
** This is for dual port devices only.

For Selfboot Firmware:
MAC_ADDRESS = xx:xx:xx:xx:xx:xx
SYSTEM_DEVICE_ID = xxxx
SUBSYSTEM_VENDOR_ID = xxxx
SUBSYSTEM_DEVICE_ID = xxxx
WOL = {enable, disable}
WOL_LIMIT_10 = {yes, no}
DESIGN_TYPE = {nic, lom}
ENABLE_AUTO_POWERDOWN = {yes, no}
REVERSE_NWAY = {yes, no}
DISABLE_POWER_SAVING = {yes,no}
CABLE_SENSE = {enable, disable}
LED_MODE = {mac_mode, phy_mode1, phy_mode2, shared_traffic, shasta_mac, wireless_combo}
POWER_DISSIPATCHED _CONSUMED = d0:d1:d2:d3:d4 *
PCIE_POWER_BUDGETING_DATA = x0:x1:x2:x3:x4 **

PRODUCT_NAME = {string (48)} *
VPDR_SYSTEM_DEFAULT = 1 **
PART_NUMBER = {string (16)}***
ENGINEERING_CHANGE = {string (10)}***
SERIAL_NUMBER = {string (16)}**
MANUFACTURING_ID = {string (4)}***
VENDOR_SPECIFIC0 = {string (16)}***

* If "d0" is 0, system default values will be selected. If "d0" is 1, suggested values will be used. If "d0" is 2, user defined values will be used. "d1" = Power Dissipated value in D0 state. "d2" = Power Dissipated value in D3 state. "d3" = Power Consumed value in D0 state. "d4" = Power Consumed value in D3 state. Power Dissipated suggested value in D0 state is 100. Power Dissipated suggested value in D3 state is 10. Power Consumed suggested value in D0 state is 100. Power Consumed suggested value in D3 state is 10.

** If "x0" is 0, system default value will be selected. If "x0" is 1, suggested default values will be used. If "x0" is 2, user defined values will be used. "x1" = Power Budgeting Data 0 | Power Budgeting Data 1. "x2" = Power Budgeting Data 2 | Power Budgeting Data 3. "x3" = Power Budgeting Data 4 | Power Budgeting Data 5. "x4" = Power Budgeting Data 6 | Power Budgeting Data 7.

*** User defined values will be used.
Suggested Product Name is "Broadcom NetXtreme Gigabit Ethernet Controller"

**** If "VPDR_SYSTEM_DEFAULT = 1" has been entered, System default value for all VPD-R data will be selected.

*****User defined values will be used.
Suggested Part Number is "BCM957xx"
Suggested Engineering Change Number is "106679-15"
Suggested Serial Number is "0123456789"
Suggested Manufacturing ID is "14e4"
Suggested Vendor Specific Data is ""

Option f has been combined with option e in secfg for Selfboot Firmware.

0:>secfg

1. MAC Address.....: 001018000000
2. Device Id.....: 1693
3. Sub Vendor Id.....: 14E4
4. Sub Device Id.....: 1693
5. Wake on LAN.....: Disabled
6. WoL Speed Limit 10..: Disabled
7. LOM/NIC design.....: NIC
8. Phy. Auto PowerDown.: Disabled
9. Reverse Nway.....: Disabled
a. Disable PowerSaving.: Disabled

b. LED mode.....: Phy1 Mode
c. Custom PCI power....: Yes (comsumed D0:100.D3:10 dissipated D0:100.D3:10)
d. Custom PCIE power...: Yes (3.3v, Sustained, D0, 1.2 Watt...)
e. Custom VPD Data
g. Cable Sense.....: Disabled

x. Save & exit

---------- Custom VPD Data (option e)----------

-> e

Selfboot VPD Data

1. Use system default
2. Costom define

-> 2
1. Part Number : BCM957xx
2. Engineering Change : 106679-15
3. Serial Number : 0123456789
4. Manufacturing ID : 14e4
5. Read only VPD Vendor Specific Data (V0) :
6. Product Name : Broadcom NetXtreme Gigabit Ethernet Controller

e	Custom VPD Data	Reference
Description: VPD Product description string.		

e-1	Part Number	Reference
Description: VPD part number..		

e-2	Engineering Change	Reference
Description: VPD engineering change.		

e-3	Serial Number	Reference
Description: VPD serial number.		

e-4	Manufacturing ID	Reference
Description: VPD manufacturing ID.		

e-5	Read only VPD Vendor Specific Data (V0)	Reference
Description: VPD V0 value. Data field provided for the customer.		

e-6	Product Name	Reference
Description: VPD Product description string.		

Example:

; This comment line
// This also can be used as comment line

// Blank line is also allowed

// This is Broadcom's MAC prefix
MAC_PREFIX = 00:10:18
POWER_DISSIPATCHED = 10:0:0:100
POWER_CONSUMED = 10:0:0:100
SUBSYSTEM_VENDOR_ID = 14e4
SUBSYSTEM_DEVICE_ID = 1644
pxe = disable
PXE_Speed = 100fd
WOL = enable
Product_name = Broadcom Gigabit Ethernet Controller
PART_NUMBER = BCM95700A6
ENGINEERING_CHANGE = 106679-15
MANUFACTURING_ID = 14e4
Asset_Tag = XYZ1234567
DUAL_MAC_MODE = normal
MBA_BOOT_PROTOCAL = pxe
MBA_BOOTSTRAP_TYPE = bbs
MBA_DELAY_TIME = 6
EXPANSION_ROM_SIZE = 128K
DESIGN_TYPE = nic
; select other channel
MAC = 1
PXE = enable

7 User Interface Commands

The commands are summarized in the following groups: vpd, nvram, cpu, dma, packet, mii, mem, test, power, irq, mac, misc and bridge.

Command Group vpd

vpdwrite	Write VPD Memory
vpdread	Read VPD Memory
vpdinfo	Show VPD Information

Command Group nvram

semode	same as flshmode command
seread	Read NVRAM
sewrite	Write NVRAM
secfg	Configure NVRAM
seprg	Program NVRAM
upgfrm	Upgrade PXE or Boot Code from a File
sever	Display Serial NVRAM Version
sechksum	Check/Update Serial NVRAM checksum
sedump	Dump NVRAM content to a file
asfcfg	Configure ASF in NVRAM
flshmode	Configure NVRAM mode
flshread	same as seread
chkpxe	Check PXE code image
dir	display file directory in NVRAM
erase	erase file from directory in NVRAM
pxeprg	Upgrade PXE from a File
flshdev	Select flash device to access
bitbang	Generate bitbang pattern to seeprom bus
seclock	set NVRAM config1 content value after reset
setorture	NVRAM reset torture test
seinit	Initialize NVRAM block
searb	set/report current NVRAM arbitration bit
seprotect	set gpio pin for NVRAM write protect
selclock	set Legacy EEPROM clock value (bit 16-24 of EEPROM addr reg)
semap	Display NVRAM usage
setwol	Enable/Disable WOL
setpxe	Enable/Disable PXE
setasf	Enable/Disable ASF
setipmi	Enable/Disable IPMI
secomp	compare eeprom content against the file
dreset	double reset test for EEPROM debug
userblock	create a userblock in NVRAM
setmba	Enable Multiple Boot Agent
segencrc	Append a CRC to the specified block
secfg1	Configure NVRAM Group1
secfg2	Configure NVRAM Group2
secfg3	Configure NVRAM Group3
secfg4	Configure NVRAM Group4

secfg5	Configure NVRAM Group5
secfgsb1	Configure Selfboot NVRAM Group1
secfgsb2	Configure Selfboot NVRAM Group2
secfgsb3	Configure Selfboot NVRAM Group3
secfghwsb1	Configure Hardware Selfboot NVRAM Group1
secfghwsb2	Configure Hardware Selfboot NVRAM Group2
secfghwsb3	Configure Hardware Selfboot NVRAM Group3

Command Group cpu

loadfw	Load Firmware to Tx/RX CPUs
cpudtt	Dump Debugging Trace of TX CPU
cpudrt	Dump Debugging Trace of RX CPU
cputrace	toggles cpu trace mode
haltcpu	Halt CPU
loadbootcode	execute bootcode from file instead of NVRAM
disasm	Disassemble MIP instructions
step	Step MIP instructions
go	start CPU
showgpr	togles showing cpu gpr mode
pc	set current CPU PC
breakpoint	set current CPU break point
select	select current CPU
u	Alias of disasm command
trap	trap cpu memory
cpuinfo	display cpu information
cpugprstatus	Display internal CPU GPR test status
cpugprrestart	Restart internal CPU GPR test

Command Group dma

dmaw	DMA from NIC to Host Memory
dmar	DMA from Host to NIC Memory
dma_h	Dump DMA Entries
dma_d	Dump DMA Entries with Decode
dma_alloc	Allocate number of DMAD

Command Group packet

maclpk	Configure MAC loopback
nicstats	Display NIC Statistics
ringindex	Dump Ring Index
blast	Blast Packets in Poll Mode
phyctrl	Configure Speeds/Duplex
txpkt	Transmit Packet
statusblk	Dump Status Block
stsblk	Dump Statistics Block
txcfg	Configure protocol packets for transmission
rxcfg	Configure Rx parameters
tprot	Blast with TPROT Packets
qstat	Get a quick NIC statistic
drvrcfg	configure driver parameters
irt	Test an individual register
macmrd	Test an individual register
miimrd	Test an individual register

pcimrd	Test an individual register

Command Group mii

mwrite	Write PHY registers via MII Management interface
mread	Read PHY registers via MII Management interface
mdev	Select current PHY to be accessed
miimode	Select Auto Mode of MII Access
lbertram	Load data to PHY BIST RAM
dbertram	Dump PHY BIST RAM
bertstats	Dump PHY BIST Statistics
rm	Read MII Registers
mrloop	loop on MII read
phymse	PHY mean square error
initphy	Initialize phy

Command Group mem

memsearch	Search a Data Pattern in Memory
read	Read Memory
write	Write Memory
poll	poll Memory
setbit	Read-Modify Memory by ored with <bits>
clearbit	Read-Modify Memory by anded with ~<bits>
readbit	Read-Modify Memory by ored with <bits>
cread	Read PCI configuration Space of specified device
cwrite	Write PCI configuration Space of specified device

Command Group test

vpdtest	Run VPD Memory Test
regtest	Run Register Test
miitest	Run MII Memory Test
msi	Run MSI Test Manually
memtest	Run Memory Test
setest	Run NVRAM Test
bist	Run BIST
nictest	Run a set of NIC Tests
intrtest	Run Interrupt Test
pkttest	Run Packet Tests
cputest	Run CPU Test
dmatest	Run DMA Test
dmashasta	Run DMA Test for Shasta family of devices
teste	Enable Test
testd	Disable Test
asftest	ASF Test
bustest	PCI Bus Test
sramtest	sram test
msitest	Run MSI Test
romtest	ROM Test
gpiotest	do GPIO test
cpudiag	run diagnostic from internal CPU
pcicfgtest	Run PCI Config. Reg. Test
petest	Perform parity error test on a bridge
errctrl	Configure Error Control Setting
sedvt	Perform NVRAM dvt test

miimisctest	Run MII Misc. Tests
cpugprtest	Run CPU GPR test

Command Group power

pmdcfg	Dump Power Management Info
pmpcfg	Add/Del Pattern
pmpd	Power Down MAC

Command Group irq

intr	Dump Interrupt Info
intrctrl	Mask/Unmask Current Interrupt
intt	Interrupt Tracer

Command Group mac

mbuf	Dump Content of MBUFs
loaddrv	Load Driver
unloaddrv	Unload Driver
machalt	Halt MAC Controller
ftq	Dump FTQ
addmc	Add Multicast MAC
delmc	Delete Multicast MAC
txmacdes	Program Destination address to UUT
txmacsrc	Program Source address to UUT
chklddrv	Check to see if driver is loaded
vlantag	Display/Clear vlanTag information

Command Group misc

reg	register wizard
exit	Exit the System
debug	debug functions
gpiowrite	Write a Value into GPIO pin
gpioread	Read GPIO Value
pxecpy	Load PXE Code to MBUF Memory
device	Show or Switch Device
version	Display Program Version
help	Display the Commands Available
?	Alternate Help Command
radix	Change System Radix
nolog	Close the Current Logfile
log	Open Logfile
pciinit	Initialize PCI Configuration Registers
pciscan	Scan for All PCI Devices
dos	Execute DOS command
diagcfg	Configure Diagnostics
reset	Reset Chip
quit	Exit the System
smbus	ASF terminal
cls	Clear Screen
loop	loop on command
dbmode	Set DEBUG Mode to On or Off Mode
asf	run asf monitor program with option to Load asf firmware image
new	Display new command available
asfprg	Program asf firmware into NVRAM
sleep	suspense process for Excute command from a file

fillpattern	Fill WOL matching pattern into Misc. Memory Loacation
inp	input port
outp	output port
switch	Altinate 'device' command
do	Excute command from a file
txfill	Fill tx buffer with pattern and packet length (14-9018)
wbuf	Write tx|rx buffer with specified data at offset
rbuf	Read tx|rx|bistin|bistout|bistex buffer
cpbuf	Copy the content of rx buffer into tx buffer
echo	echo <string> to screen
pause	Pause for user to hit a key
q	Exit the System, alias name for quit
verbose	change verbose setting
beep	Create a beep sound
var	Display current variables
meminfo	report the memory infomation
delvar	Delete local variables
regdump	Dump register content to a file
regcomp	Compare register content to a file
regrestore	Restore register content from a file

Command Group bridge

readbr	Read bridge's configuration space
writebr	Write bridge's configuration space
findbridge	Find all bridges in the system
bridge	Switch to specified bridge
pere	Enable parity error response on a bridge.
perd	Disable parity error response on a bridge
peclr	Clear parity error on bridge
pechk	Clear parity error on a bridge

8 Special Instruction

1. Mac register test:

   Unload MAC driver before running test.

2. Memory test:

   Unload MAC driver before running test.

3. DMA test:

   Unload MAC driver before running test.

4. TX RX packets:

   TX sides need to be configured (txcfg).

   RX sides need to be configured (rxcfg).

   Configure MAC and PHY loop back.

   Call txpkt to transmit packets.

5. The following tests need to setup test configuration before running.

   To setup test configuration, run "diagcfg". Diag config can be saved in system for future use.

   Test:

   Memory test

   NIC test

6. Unload driver before power down NIC card.

7. Load driver after power up NIC card.

8. Blast Test:

   Load MAC driver before running test.

9 Same System Send/Respond Test

During a send/respond test two Broadcom Ethernet devices in the same system are connected via a CAT5 (RJ45) cable and data is transmitted and received across the cable. In the above setup one device is the device under test (DUT) and the other is the reference device. Any Broadcom device that is supported by diagnostics can be used as the DUT or the reference device.

9.1 Identifying a reference device

A reference device needs to be identified in order to test a DUT against the reference device. The user can use the "b57diag –dids" command to display all the devices in the system. Each device is assigned a number that is displayed on the screen in the first column just before the device type. A user selects the number of the device that is to be used as the reference and uses this number to test the DUT as described in the next section.

9.2 Testing the DUT against the reference device

After identifying the reference device, as described in the previous section, the user can test the DUT by running "b57diag –rf 0 –c 1 –t abcd –T d3". Each of the previous options are described in the table below (details of each option are provided in the "Command line option parameters" section above).

-rf 0	Identifies the reference device as device 0.
-c 1	Identifies the DUT as device 1.
–t abcd	Disables all tests (Disable all tests in group a, b, c, and d).
–T d3	Perform the external loopback test that will transmit data from the DUT to the reference device, via the CAT5 cable, then the reference device will receive the data and transmit it back, via the CAT5 cable, to the DUT which will verify the received data.

9.3 Other Options for the Send/Respond test

The following options can be used with the send/respond test (details of each option are provided in the "Command line option parameters" section above).

-lbspd t/h/g	Selects any combination of line speed to run the loopback test (by default runs all line speeds).
–lbe g:h:t	Selects the number of packets to send during the loopback test (g, h & t are the 1000/100/10 megabit packet counts respectively) (default values are g=2000, h=1000, t=600). It is mandatory that all packets counts are entered with this command line switch.

10 Test and Functions Description

10.1 vpdwrite

cmd: vpdwrite

Description: Write data to VPD storage.

Syntax: vpdwrite <start[-end | len] value> | <filename>

File format:

Address range: 0x00 – 0xFF

num_bytes: 256 (max)

If only one argument is entered, filename is assumed. Otherwise, 'start [len] value' format must be used.

10.2 vpdread

cmd: vpread

Description: Read data from VPD storage

Syntax: vpdread start[-end | len]

Address range : 0x00 – 0xFF

num_byte : 256 (max)

10.3 vpdinfo

cmd: vpdinfo

Description: Show VPD Information

Syntax: vpdinfo

10.4 semode

cmd: semode

Description: Configure NVRAM Mode.

Syntax: semode [auto | passthru | legacy | new]

Example:

1. Set Serial EEPROM mode to Auto.

```
0:> semode auto
```

2. Display Current mode

0:> semode
Current mode : New NVRAM Access, Auto
device: Flash – ATMEL (with buffer)

10.5 seread

cmd: seread

Description: Read NVRAM

Syntax: seread start[-end | len]

Note: Use "semode" command to configure the interface mode.

Example:

1. Set number base to hex, then read and display serial eeprom locations from 0x00 to 0x20

```
0:> radix 16
0:> seread 0-20
*** Dump Serial EEPROM (Auto Mode) ***
000000: 669955aa 08000000 00000069 00000200 d97b07d0 00000000 00000000 00000000

000020: 00000000
```

2. Set number base to hex then read location 0x18 of serial eeprom.

```
0:> radix 16
0:> seread 18 1
*** Dump Serial EEPROM (Auto Mode) ***
000018: 000000ff
```

10.6 sewrite

cmd: sewrite

Description: Write NVRAM

Syntax: sewrite start[-end | len] data

Note: Use "semode" command to configure the interface mode.

Example:

1. Set number base to hex, write 0x55AA to serial eeprom from locations 0x30 to 0x35

0:> radix 16
0:> sewrite 30-35 55AA
***** Write Serial EEPROM (Auto Mode) *****

2. Set number base to hex, write 0x2 to serial eeprom location 0x25

```
0:> radix 16
0:> sewrite 25 2
 ***  Write Serial EEPROM (Auto Mode) ***
```

10.7 secfg

cmd: secfg

Description: Configure Boot Code or Selfboot firmware.

All option is for Boot Code only. If selected program with defaults (-f=1), eeprom.bin must be found in the same directory of b57diag.exe.

Syntax: secfg

Options:

-v<n> : verbose level (0,1,2) (def=0)

-f : force to program with defaults

Example: (For Boot Code).

1 Program Serial EEPROM with defaults value and set verbose level to 0.

```
0:> secfg
Reading current NVRAM ... OK
Validating content...

1. MAC Address                                  : 00:10:18:04:1a:36
 2. Power Dissipated (D3:D2:D1:D0)               : 10:0:0:100
 3. Power Consumed (D3:D2:D1:D0)                 : 10:0:0:100
 4. Vendor ID                                    : 14E4
 5. Vendor Device ID                             : 1653
 6. Subsystem Vendor ID                          : 14E4
 7. Subsystem Device ID                          : 1653
 8. PXE (does not apply to PXE in system ROM)
                    { Enable(1), Disable(2) }    : Disable
 9. PXE Link Speed { Auto(0),10HD(1),10FD(2)
                              100HD(3),100FD(4) }: Auto
10. Magic Packet WoL { Enable(1), Disable(2) }   : Disable
11. Product Name : Broadcom NetXtreme Gigabit Ethernet Controller
12. Part Number                                  : BCM95705A50
13. Engineering Change                           : 106679-15
14. Serial Number                                : 0123456789
15. Manufacturing ID                             : 14e4
16. Asset Tag                                    : XYZ01234567
17. Part Revision                                : A0
18. Voltage  { 1.3V(0), 1.8V(1) }                : 1.8V
19. Force PCI Mode { Enable(1),Disable(2) }      : Disable
20. PHY Type { Copper(1),Fiber(2) }              : Copper
21. Led Mode { Mac Mode(0), Phy Mode1 (1), Phy Mode2 (2),
               Shasta Mac Mode (3), SharedTraffic (4),
               Wireless Combo (5)}               : Phy Mode1
22. PHY ID  ([PHY#2][PHY#3])                     : 00206160
23. Max PCI Retry {0-7, 8=auto}                  : 8
24. Advanced firmware feature (ASF/IPMI/UMP)
                    { Enable(1), Disable(2) }    : Disable
```

```
25. Dual MAC mode {Normal(0), MAC_B only(1)
    MAC_A only(2), XBAR(3), swap(4), swapXBAR(7)}: 0
26. MBA Boot Protocol {PXE(0), RPL(1), BOOTP(2),
                                       iSCSI(3)} : 0
27. MBA Bootstrap Type
           {Auto(0), BBS(1), Int18(2), Int19(3)}: 0
28. MBA Delay Time (0-15)                        : 0
29. Expansion ROM size (does not apply to PXE in system ROM)
     { 64k(0), 128k(1), 256k(2),512k(3), 1M(4), 2M(5),
                        4M(6), 8M(7), 16M(8) } : 0
30. Design Type: {NIC(0), LOM(1)}                : NIC
31. Read only VPD Vendor Specific Data (V0)      :
32. Read/Write VPD Vendor Specific Data (V1)     :
33. Reversed Nway {No(0), Yes(1)}                : No
34. Limit WoL Speed to 10 {No(0), Yes(1)}        : No
35. Fiber WoL Capable {No(0), Yes(1)}            : No
36. Clock-Run Setting {Disable(0), Enable(1)}    : Disable
37. Enable PHY Auto Powerdown {No(0), Yes(1)}    : No
38. Disable PowerSaving capability {No(0),Yes(1)}: No
39. Hide MBA Setup Prompt {Disable(0), Enable(1)}: Disabled
40. MBA Setup Hot Key {Ctrl-S(0), Ctrl-B(1)}     : 0
41. Capacitive Coupling (5705 only)
                {Disable(0), Enable(1)}          : Disabled
42. SERDES TX Drvr Pre-Emp - Primary (5704 only) : 0
43. SERDES TX Drvr Pre-Emp - Second  (5704 only) : 0
44. SERDES TX Drvr Pre-Emp - ENABLE  (5704 only)
           {Disable(0), Enable(1)}               : Disabled
46. Encoded Hot Plug Power Value 1 & 2 For NIC   : 00000000
47. Encoded Hot Plug Power Value 3 & 4 For NIC   : 00000000
48. Encoded Hot Plug Power Value 5 & 6 For NIC   : 00000000
49. Encoded Hot Plug Power Value 7 & 8 For NIC   : 00000000
50. Hot Plug Power {Disable(0), Enable(1)}       : Disabled
51. Pri. Port SMB Address (ASF/IPMI)             : A4
52. Sec. Port SMB Address (IPMI)                 : A6
53. Cable Sense {Disable(0), Enable(1)}          : Disabled
54. GPIO 0 Config {Input(0), Output Hi(1),
                           Output Lo(2)          : Input
55. GPIO 2 Config {Input(0), Output Hi(1),
                           Output Lo(2)          : Input

Enter your choice (option=paramter/save/cancel) ->
```

Description of above parameters:

To enter the 'secfg' menu shown above a user type in 'secfg' at the diagnostics command line. A menu is present to the user showing the 'secfg' options shown above. A user can change the 'secfg' parameter by entering the option number, followed by and equal sign, and then followed by the parameter selected. To enable ASF (option 24) a user would enter "24=1" at the diagnostics 'secfg' command line, which would look like the following: "`Enter your choice (option=paramter/save/cancel) -> 24=1`".

The tables below provide details for each parameter of the 'secfg' options. The top right of each table has the word "`Configure`" or "`Reference`". "`Configure`" signifies that the option is used to configure the operating characteristics of the device or default values of registers in the device. "`Reference`" signifies that the option is use for display purposes and does not affect the operating characteristics of the device or default values of registers in the device.

1	MAC Address	Configure

Description:
MAC address of the device.

2	Power Dissipated (D3:D2:D1:D0)	Reference
Description:		
Power dissipated in D3-0 states.		

3	Power Consumed (D3:D2:D1:D0)	Reference
Description:		
Power consumed in D0-2 states.		

4	Vendor ID	Configure
Description:		
PCI Vendor ID. Default 0x14e4.		

5	Device ID	Configure
Description:		
PCI Device ID.		

6	Subsystem Vendor ID	Configure
Description:		
PCI Subsystem PCI Vendor ID.		

7	Subsystem Device ID	Configure
Description:		
PCI Subsystem PCI Device ID.		

8	PXE	Configure
Description:		
Enable the Pre-Boot Execution Environment (PXE) by using this option. This option does not apply to PXE in system ROM. Options 8,9, 26 - 29 and 39-40 configure the boot protocol behavior.		
Enable(1)	When PXE is enable the expansion ROM enable bit in the PCI configuration space is set for system boot up. The user has to make sure the PXE code is loaded into the non-volatile memory by using the "loadpxe" command.	
Disable(2)	When PXE is disable the expansion ROM enable bit in the PCI configuration space is cleared for system boot up. The PXE code does NOT have to been load into the non-volatile memory of the device.	

9	PXE Link Speed	Configure
Description:		
Pre-Boot Execution Environment line configuration is specified using the parameters below. Options 8,9, 26 - 29 and 39-40 configure the boot protocol behavior.		
Auto(0)	PXE auto detects the link configuration.	
10HD(1)	PXE uses a 10 Mbits/s, half duplex line configuration.	
10FD(2)	PXE uses a 10 Mbits/s, full duplex line configuration.	
100HD(3)	PXE uses a 100 Mbits/s, half duplex line configuration.	
100FD(4)	PXE uses a 100 Mbits/s, full duplex line configuration.	

10	Magic Packet WoL	Configure
Description:		
A system can be configured to power-on when a Magic Packet is received.		
Enable(1)	The device will assert the pme signal, to power on the system, when a magic packet is received.	
Disable(2)	Magic packets are ignored.	

Note:
A driver can setup the WoL behavior of a device and the value programmed into this location is ignored.

11	Product Name	Reference
Description:		
VPD Product description string.		

12	Part Number	Reference
Description:		
VPD part number..		

13	Engineering Change	Reference
Description:		
VPD engineering change.		

14	Serial Number	Reference
Description:		
VPD serial number.		

15	Manufacturing ID	Reference
Description:		
VPD manufacturing ID.		

16	Asset Tag	Reference
Description:		
VPD asset tag.		

17	Part Revision	Reference
Description:		
VPD part revision.		

18	Voltage	Configure
Description:		
Controls the voltage source level for the 5701 controller.		
1.3V(0)	Selects a 1.3V source.	
1.8V(1)	Selects a 1.8V source.	

19	Force PCI Mode	Configure
Description:		
PCI bus operational mode configuration.		
Enable(1)	When enabled the device uses PCI mode, instead of PCI-X, independent of the capabilities of the slot the device is plugged into.	
Disable(2)	When disabled the device uses the PCI mode of the slot the device is plugged into; if the device is capable of operating in the required mode.	

20	PHY Type {option no longer supported}	Configure
Description:		
PHY line type configuration.		
Copper(1)	The communication medium is copper.	
Fiber(2)	The communication medium is fiber.	

21	Led Mode	Configure

Description:
A device can be configured to use one LED to indicate speed and activity or three LEDs. Use a devices data sheet to verify the LED modes supported by a devices and for exceptions to the LED modes described below.

Mac Mode (0)	The LEDs are controlled by the value in the Mac LED Control Register.
Phy Mode1 (1)	Three LEDs are used for 10/100/1000 Mbits/s and each is driven individually by the device.
Phy Mode2 (2)	One LED is used for 10/100/1000 Mbits/s and is connected as described below. 5700/01 – The Link10 line will indicate link for all speeds. Link100 and Link1000 will encode the line speed as show in the following table:

Link 100	Link 1000	Speed
0	0	10 Mbits/s
1	0	100 Mbits/s
0	1	1000 Mbits/s

For all other 57xx devices the three link lines operate in an open drain configuration and can be tied together with a pull up resistor to control a LED.

SharedTraffic (3)	Mode specific to the 575x and 572x chips. The link LED performs a dual role: solid when there is a link and blinks when there is activity.
Shasta Mac Mode (4)	Mode specific to the 575x and 572x chips. The link LED blinks only when traffic is for Shasta.
Wireless Combo (5)	Mode specific to the 575x and 572x chips. When link is lost the LEDs are driven by inputs pins that are connected to the LED signals of a wireless link.

22	PHY ID	Reference

Description:
Only for display purposes not used in software.

[PHY#2][PHY#3]	

23	Max PCI Retry	Configure

Description:
The maximum number of time to retry an aborted PCI operation.

0-7	The number of MAX PCI retries is force by the users configuration.
8=auto	The MAX PCI retry field is selected dynamically by firmware based on PCI bus type detected.

24	Advanced firmware feature (ASF/IPMI/UMP)	Configure

Description:
Advanced firmware feature such as Alert Standard Format (ASF) or IPMI is enabled by this option.

Enable(1)	If the ASF/IPMI/UMP code is loaded in NVRAM it is loaded and executed by the device.
Disable(2)	No ASF/IPMI/UMP functionality is provided when disable.

25	Dual MAC mode	Configure

Description:
This option is only valid for a dual port device such as a 5704. The physical ports will be named MAC_A an MAC_B for the discussion below.

Normal(0)	MAC_A and MAC_B are available and are supported as PCI function 0 & 1.
MAC_B only(1)	MAC_B is available and is supported as PCI function 0. MAC_A is disable.

MAC_A only(2)	MAC_A is available and is supported as PCI function 0. MAC_B is disable.
XBAR mode(3)	MAC_A and MAC_B are available and are supported as PCI function 0. MAC_A is the primary device and MAC_B is mapped in the space of MAC_A. To the OS and BOIS this looks like one port. The driver will trunk the two ports together as one logical port which allows for load balancing, failover/recovers, turbo-teaming, etc.
swap(4)	Physical port MAC_A and MAC_B are available and are supported as PCI function 1 and 0 respectively.
swapXBAR(7)	MAC_A and MAC_B are available and are supported as PCI function 0. MAC_B is the primary device and MAC_A mapped in the space of MAC_B. To the OS and BOIS this looks like one port. The driver will trunk the two ports together as one logical port which allows for load balancing, failover/recovers, turbo-teaming, etc.

26	MBA Boot Protocol	Configure
Description: Select a Multiple Boot Agent. Options 8,9, 26 - 29 and 39-40 configure the boot protocol behavior.		
PXE(0)	PreBoot Execution Environment (PXE) is the boot protocol.	
RPL(1)	Remote Program Load (RPL) is the boot protocol.	
BOOTP(2)	Boot Protocol (BOOTP) is the boot protocol.	
ISCSI(3)	ISCSI is the boot protocol.	

27	MBA Bootstrap Type	Configure
Description: The BIOS bootstrap methods listed below are supported. Options 8,9, 26 - 29 and 39-40 configure the boot protocol behavior.		
Auto(0)	Automatically configured use one of the methods below.	
BBS(1)	A BIOS that supports the BIOS Boot Specification (BBS) can initiate the bootstrap method via the expansion ROMs Bootstrap Entry Vector.	
Int18(2)	A INT18 is used to initiate the bootstrap method.	
Int19(3)	A INT19 is used to initiate the bootstrap method.	

28	MBA Delay Time	Configure
Description: The amount of time the MBA boot message is displayed, in order to give a user the option to enter the BOOT parameter configuration screen.		
0-15	The number of seconds the MBA banner is displayed.	

29	Expansion ROM size	Configure
Description: This value determines the size of the expansion ROM. This option does not apply to PXE in system ROM. Options 8,9, 26 - 29 and 39-40 configure the boot protocol behavior.		
64k(0)	Advertises 64k expansion ROM size.	
128k(1)	Advertises 128k expansion ROM size.	
256k(2)	Advertises 256k expansion ROM size.	
512k(3)	Advertises 512k expansion ROM size.	
1M(4)	Advertises 1M expansion ROM size.	
2M(5)	Advertises 2M expansion ROM size.	
4M(6)	Advertises 4M expansion ROM size.	
8M(7)	Advertises 8M expansion ROM size.	
16M(8)	Advertises 16M expansion ROM size.	

30	Design Type	Configure

Description:	
Select NIC or LOM based Ethernet controller.	
NIC(0)	Option selected for a plug in network interface card.
LOM(1)	Option selected for a LAN on motherboard.
Note:	
The firmware and the drivers use this to determine the operational characteristics of a device. For example, on a LOM GPIO2 is tied to the SEEPROM write protect pin and on a NIC GPIO 1 and 2 is used to switch between main and auxiliary power for wake on LAN functionality.	

31	Read only VPD Vendor Specific Data (V0)	Reference
Description:		
VPD V0 value. Data field provided for the customer.		

32	Read/Write VPD Vendor Specific Data (V1)	Reference
Description:		
VPD V1 value. Data field provided for the customer.		

33	Reversed Nway	Configure
Description:		
Nway Negotiation.		
0	(default) Auto-negotiation is done from 1000->100->10 Mbits/s.	
1	Auto-negotiation is done from 10->100->1000 Mbits/s.	
Note:		
A user could set the chip for option 1 when running a laptop on battery power. The chip would auto-negotiate starting at a lower speed and lower power. The chip would only go to higher line rates and higher power if the lower line rates were unavailable.		

34	Limit WoL Speed to 10	Configure
Description:		
Limit Wake on LAN (WoL) line speed.		
No(0)	10 or100 Mbits/s is used for WoL.	
Yes(1)	Only 10 Mbits/s is used for WoL.	

35	Fiber WoL Capable	Configure
Description:		
Fiber Wake on LAN (WoL) Capable enable.		
No(0)	Disable Fiber WoL.	
Yes(1)	Enable Fiber WoL.	

36	Clock-Run Setting	Configure
Description:		
Enable Clock-Run on mini-PCI/cardbus systems. This parameter is valid only for the 5705 A0-A2.		
Enable(1)	Sets the clock mode register bit 22 which will assert (active low) the clock run signal on the bus prior to any PCI configuration space activity.	
Disable(0)	The above is not performed.	

37	Enable PHY Auto Powerdown	Configure
Description:		
Enable GPHY auto-power down when there is no link present (to conserver power).		
No(0)	The PHY will not auto power down.	
Yes(1)	The PHY will auto power down when there is no link.	

38	Disable Power Saving capability	Configure
Description:		
Disable Power Saving capability setup by option 33 above. When disable a device will use Nway negotiation.		

No(0)	Power-saving capability active.
Yes(1)	Power-saving capability inactive.

39	Hide MBA Setup Prompt	Configure
Description: During the MBA boot, the MBA setup prompt is displayed to provide the user the option to setup and configure various MBA parameters. Options 8,9, 26 - 29 and 39-40 configure the boot protocol behavior.		
Disable (0)	Hide the MBA Setup Prompt. The user is NOT give the option to change the MBA boot parameters.	
Enable (1)	Show the MBA Setup Prompt. The user is given the option to change the MBA boot parameters.	

40	MBA Setup Hot Key	Configure
Description: Hot Key used to enter the MBA Setup. Options 8,9, 26 - 29 and 39-40 configure the boot protocol behavior.		
Ctrl-S (0)	MBA Setup entered via ctrl-s.	
Ctrl-B (1)	MBA Setup entered via ctrl-b.	

41	Capacitive Coupling	Configure
Description: Enable/Disable the PHY to operate with capacitors as line isolators for the 5705 family.		
Disable (0)	Disable capacitive coupling.	
Enable (1)	Enable capacitive coupling.	

42	SERDES TX Drvr Pre-Emp – Primary (5704 only)	Configure
Description: The TX driver pre-emphasis value that is used for the primary device of a 5704 if it is enabled by option 44 below.		

43	SERDES TX Drvr Pre-Emp – Secondary (5704 only)	Configure
Description: The TX driver pre-emphasis value that is used for the secondary device of a 5704 if it is enabled by option 44 below.		

44	SERDES TX Drvr Pre-Emp – ENABLE (5704 only)	Configure
Description: Enable/Disable the setup of the TX driver pre-emphasis defined in options 42 and 43 above.		
Disable (0)	Disable TX driver per-emphasis.	
Enable (1)	Enable TX driver per-emphasis.	

45	Reserved. Option no longer in use.	Reference

46	Encoded Hot Plug Power 1 & 2 For NIC	Configure

Description:
Encoded Hot plug power values 1 & 2 for a NIC device that is used only if enabled in option 50 below. The following description applies to options 46-49.

This option is only valid for 5787 and 575xCx devices. The power values need to be setup by the OEM / manufacture based on actual measurements. Default values, contained in the bootcode / firmware, are loosely based on the in house Broadcom NIC card.

15-0 Power Budget data 1

7-0 Base Power in .1 Watt

For example, 1.4 Watt should have value 14.

9-8 PM State

00 D0
01 D1
10 D2
11 D3

12-10 Type

000 PME Aux
001 Auxiliary
010 Idle
011 Sustained
111 Maximum

13-15 Power Rail

000 12V
001 3.3V
010 1.8V
111 Thermal

31-16 Power Budget data 2

See Power Budget Data 1 for detail, Bit number add 16.

47	Encoded Hot Plug Power 3 & 4 For NIC	Configure

Description:
Encoded Hot plug power values 3 & 4 for a NIC device that is used only if enabled in option 50 below. Look at option 46 for details.

48	Encoded Hot Plug Power 5 & 6 For NIC	Configure

Description:
Encoded Hot plug power values 5 & 6 for a NIC device that is used only if enabled in option 50 below. Look at option 46 for details.

49	Encoded Hot Plug Power 7 & 8 For NIC	Configure

Description:
Encoded Hot plug power values 7 & 8 for a NIC device that is used only if enabled in option 50 below. Look at option 46 for details.

50	Hot Plug Power	Configure

Description:
Enable/Disable the hot plug power values defined in options 46-49.

Disable (0)	Disable hot plug power feature.

Enable (1)	Enable hot plug power feature.

51	Pri. Port SMB Address (ASF/IPMI)	Configure
Description: SMB address of the primary port on a device.		

52	Sec. Port SMB Address (IPMI)	Configure
Description: SMB address of the secondary port on a device (only valid for dual port devices).		

53	Cable Sense	Configure
Description: Enables a low power mode (IDDQ) of the chip which allows the presence of a cable to be detected by the chip (valid for 5752M/5755M/5787M/5787FM devices). Once Cable Sense is enabled GPIO3 will be an Energy Detect Output Pin and will be high if a cable (with a signal present) is plugged into the RJ45 and low otherwise.		
Disable (0)	Disable cable sense.	
Enable (1)	Enable cable sense.	

54	GPIO 0 Input/Output Config	Configure
Description: Setting GPIO 0 input/output configuration (5714 LOM or 5715 LOM only)		
Input (0)	Config as input	
Output HI (1)	Config as output HI	
Output LO (2)	Config as output LOW	

55	GPIO 2 Input/Output Config	Configure
Description: Setting GPIO 2 input/output configuration (5714 LOM or 5715 LOM only)		
Input (0)	Config as input	
Output HI (1)	Config as output HI	
Output LO (2)	Config as output LOW	

Example: (For Selfboot firmware).

0:>secfg

1. MAC Address.....: 001018000000
2. Device Id.....: 1693
3. Sub Vendor Id.....: 14E4
4. Sub Device Id.....: 1693
5. Wake on LAN.....: Disabled
6. WoL Speed Limit 10..: Disabled
7. LOM/NIC design.....: NIC
8. Phy. Auto PowerDown.: Disabled
9. Reverse Nway.....: Disabled
a. Disable PowerSaving.: Disabled
b. LED mode.....: Phy1 Mode
c. Custom PCI power....: Yes (comsumed D0:100.D3:10 dissipated D0:100.D3:10)
d. Custom PCIE power...: Yes (3.3v, Sustained, D0, 1.2 Watt...)
e. Custom VPD Prod.Name: Yes(Broadcom NetXtreme Gigabit Ethernet Controller)
f. Custom VPD-R Data...: Yes
g. Cable Sense.....: Disabled

x. Save & exit

---------- LED Mode (option b)----------_

-> b

Selfboot LED Mode selection

0. Mac Mode
1. Phy1 Mode
2. Phy2 Mode
3. Shared Traffic/Lik LED Mode
4. Shasta MAC mode
5. Wireless Combo Mode

---------- Custom PCI power (option c)----------

-> c

Selfboot PCI Power Consumption/Dissipate value

1. Use system default
2. Costom define

-> 2
D0 State Power Comsumed decimal value (0-255) (100)->100
D3 State Power Comsumed decimal value (0-255) (10)->10
D0 State Power Dissipated decimal value (0-255) (100)->100
D3 State Power Dissipated decimal value (0-255) (10)->10

---------- Custom PCIE power (option d)----------

-> d

Selfboot PCIE Power Budgeting Data

1. Use system default
2. Costom define

-> 2

0. Data0: 3.3v, Sustained, D0, 1.2 Watt
1. Data1: 3.3v, Maximum, D0, 1.4 Watt
2. Data2: 3.3v, Maximum, D3, 0.6 Watt
3. Data3: 3.3v, PME Aux, D3, 0.4 Watt
4. Data4: Unused
5. Data5: Unused
6. Data6: Unused
7. Data7: Unused

---------- Custom VPD Prod.Name (option e)----------

-> e

Selfboot VPD Product Name

1. Use system default
2. Costom define

-> 2

Current product name = Broadcom NetXtreme Gigabit Ethernet Controller
New name ->

---------- Custom VPD-R Data (option f)----------

-> f

Selfboot VPD R

1. Use system default
2. Costom define

-> 2
1. Part Number : BCM957xx
2. Engineering Change : 106679-15
3. Serial Number : 0123456789
4. Manufacturing ID : 14e4
5. Read only VPD Vendor Specific Data (V0) :

Description of above parameters:

To enter the 'secfg' menu shown above a user type in 'secfg' for selfboot firmware at the diagnostics command line. A menu is present to the user showing the 'secfg' options shown above. A user can change the 'secfg' parameter by entering the option number.

The tables below provide details for each parameter of the 'secfg' options for selfboot firmware. The top right of each table has the word "`Configure`" or "`Reference`". "`Configure`" signifies that the option is used to configure the operating characteristics of the device or default values of registers in the device. "`Reference`" signifies that the option is use for display purposes and does not affect the operating characteristics of the device or default values of registers in the device.

1	MAC Address	Configure
Description: MAC address of the device.		

2	Device ID	Configure
Description: PCI Device ID.		

3	Subsystem Vendor ID	Configure

Description:
PCI Subsystem PCI Vendor ID.

4	Subsystem Device ID	Configure
Description:		
PCI Subsystem PCI Device ID.		

5	Magic Packet WoL	Configure
Description:		
A system can be configured to power-on when a Magic Packet is received.		
Enable(1)	The device will assert the pme signal, to power on the system, when a magic packet is received.	
Disable(2)	Magic packets are ignored.	
Note:		
A driver can setup the WoL behavior of a device and the value programmed into this location is ignored.		

6	Limit WoL Speed to 10	Configure
Description:		
Limit Wake on LAN (WoL) line speed.		
No(0)	10 or100 Mbits/s is used for WoL.	
Yes(1)	Only 10 Mbits/s is used for WoL.	

7	Design Type	Configure
Description:		
Select NIC or LOM based Ethernet controller.		
NIC(0)	Option selected for a plug in network interface card.	
LOM(1)	Option selected for a LAN on motherboard.	
Note:		
The firmware and the drivers use this to determine the operational characteristics of a device. For example, on a LOM GPIO2 is tied to the SEEPROM write protect pin and on a NIC GPIO 1 and 2 is used to switch between main and auxiliary power for wake on LAN functionality.		

8	Enable PHY Auto Powerdown	Configure
Description:		
Enable GPHY auto-power down when there is no link present (to conserver power).		
No(0)	The PHY will not auto power down.	
Yes(1)	The PHY will auto power down when there is no link.	

9	Reversed Nway	Configure
Description:		
Nway Negotiation.		
0	(default) Auto-negotiation is done from 1000->100->10 Mbits/s.	
1	Auto-negotiation is done from 10->100->1000 Mbits/s.	
Note:		
A user could set the chip for option 1 when running a laptop on battery power. The chip would auto-negotiate starting at a lower speed and lower power. The chip would only go to higher line rates and higher power if the lower line rates were unavailable.		

a	Disable Power Saving capability	Configure
Description:		
Disable Power Saving capability setup by option 33 above. When disable a device will use Nway negotiation.		
No(0)	Power-saving capability active.	
Yes(1)	Power-saving capability inactive.	

b	Led Mode	Configure

Description:
A device can be configured to use one LED to indicate speed and activity or three LEDs. Use a devices data sheet to verify the LED modes supported by a devices and for exceptions to the LED modes described below.

Mac Mode (0)	The LEDs are controlled by the value in the Mac LED Control Register.
Phy Mode1 (1)	Three LEDs are used for 10/100/1000 Mbits/s and each is driven individually by the device.
Phy Mode2 (2)	One LED is used for 10/100/1000 Mbits/s and is connected as described below. 5700/01 – The Link10 line will indicate link for all speeds. Link100 and Link1000 will encode the line speed as show in the following table:

Link 100	Link 1000	Speed
0	0	10 Mbits/s
1	0	100 Mbits/s
0	1	1000 Mbits/s

For all other 57xx devices the three link lines operate in an open drain configuration and can be tied together with a pull up resistor to control a LED.

SharedTraffic (3)	Mode specific to the 575x and 572x chips. The link LED performs a dual role: solid when there is a link and blinks when there is activity.
Shasta Mac Mode (4)	Mode specific to the 575x and 572x chips. The link LED blinks only when traffic is for Shasta.
Wireless Combo (5)	Mode specific to the 575x and 572x chips. When link is lost the LEDs are driven by inputs pins that are connected to the LED signals of a wireless link.

c	Custom PCI Power	Reference

Description:
Self boot PCI Power Consumption/Dissipate for D0 and D3 state.

d	Custom PCIE Power	Reference

Description:
Self boot PCIE Power Budgeting Data

e	Product Name	Reference

Description:
VPD Product description string.

f-1	Part Number	Reference

Description:
VPD part number..

f-2	Engineering Change	Reference

Description:
VPD engineering change.

f-3	Serial Number	Reference

Description:
VPD serial number.

f-4	Manufacturing ID	Reference

Description:
VPD manufacturing ID.

f-5	Read only VPD Vendor Specific Data (V0)	Reference

Description: VPD V0 value. Data field provided for the customer.

g	Cable Sense	Configure
Description: Enables a low power mode (IDDQ) of the chip which allows the presence of a cable to be detected by the chip (valid for 5752M/5755M/5787M/5787FM devices). Once Cable Sense is enabled GPIO3 will be an Energy Detect Output Pin and will be high if a cable (with a signal present) is plugged into the RJ45 and low otherwise.		
Disable (0)	Disable cable sense.	
Enable (1)	Enable cable sense.	

Example: (For Hardware Selfboot firmware).

0:>secfg

1. MAC Address.....: 001018123456
2. Device Id.....: 1713
3. Sub Vendor Id.....: 14E4
4. Sub Device Id.....: 9713
5. WOL.....: Disabled
6. WoL Speed Limit 10..: Disabled
7. WoL Auto.....: Disabled
8. LED mode.....: PHY MODE 2
9. VPD Prod.Name and VPD-R Data: Yes
A. Super-airplane Mode.: Enabled
B. MBA Configuration

x. Save & exit

---------- WOL Auto (option 7)----------_

-> 7

HW Selfboot Driver WOL selection

0. Disable
1. Magic Packet WOL Enable
2. Interesting Packet WOL Enable
3. Magic and Interesting Packet WOL Enable

---------- LED Mode (option 8)----------_

-> 8

HW Selfboot LED Mode selection

0. Mac Mode

1. Phy1 Mode
2. Phy2 Mode
3. Shared Traffic/Lik LED Mode

---------- VPD Data (option 9)----------_

-> 9

HW Selfboot VPD Data
1. Part Number : BCM95906
2. Engineering Change : 106679-15
3. Serial Number : 0123456789
4. Manufacturing ID : 14e4
5. Read only VPD Vendor Specific Data (V0) :
6. Product Name : Broadcom NetLink Fast Ethernet Controller

x. Save & exit

---------- MBA Configuration (option B)----------

-> B

HW Selfboot MBA Data
1. VLAN Enable : Disabled
2. VLAN ID : 0
3. MBA HIDE BANNER : Disabled
4. MBA HOT KEY : Ctrl-B
5. MBA PROTOCOL : PXE
6. MBA CONFIG TIME OUT : 0
7. MBA BOOTSTRAP : AUTO
8. MBA LINK SPEED : AUTO

x. Save & exit

Description of above parameters:

To enter the 'secfg' menu shown above a user type in 'secfg' for hardware selfboot firmware at the diagnostics command line. A menu is present to the user showing the 'secfg' options shown above. A user can change the 'secfg' parameter by entering the option number.

The tables below provide details for each parameter of the 'secfg' options for hardware selfboot firmware. The top right of each table has the word "`Configure`" or "`Reference`". "`Configure`" signifies that the option is used to configure the operating characteristics of the device or default values of registers in the device. "`Reference`" signifies that the option is use for display purposes and does not affect the operating characteristics of the device or default values of registers in the device.

1	MAC Address	Configure

Description:
MAC address of the device.

2	Device ID	Configure
Description:		
PCI Device ID.		

3	Subsystem Vendor ID	Configure
Description:		
PCI Subsystem PCI Vendor ID.		

4	Subsystem Device ID	Configure
Description:		
PCI Subsystem PCI Device ID.		

5	WoL	Configure
Description:		
A system can be configured to power-on when a Magic Packet is received.		
Enable	The device will assert the pme signal, to power on the system, when a magic packet is received.	
Disable	Magic packets are ignored.	
Note:		
A driver can setup the WoL behavior of a device and the value programmed into this location is ignored.		

6	Limit WoL Speed to 10	Configure
Description:		
Limit Wake on LAN (WoL) line speed.		
No	10 or100 Mbits/s is used for WoL.	
Yes	Only 10 Mbits/s is used for WoL.	

7	Wol Auto Setting	Configure
Description:		
Select WOL Auto Setting		
Disable (0)	WOL is Disabled	
Magic Packet WOL (1)	Option selected for Magic Packet WOL.	
Interesting Packet WOL (2)	Option selected for Interesting Packet WOL.	
Magic and Interesting Packet WOL (3)	Option selected for Interesting and Magic Packet WOL .	

8	Led Mode	Configure
Description:		
A device can be configured to use one LED to indicate speed and activity or three LEDs. Use a devices data sheet to verify the LED modes supported by a devices and for exceptions to the LED modes described below.		
Mac Mode (0)	The LEDs are controlled by the value in the Mac LED Control Register.	
Phy Mode1 (1)	Dual Link LED configuration. Two LEDs are used to indicate 10/100 Mbps.	
Phy Mode2 (2)	Link/Speed LED configuration. One LED is used to indicate link status of all 10/100 Mbps.	
SharedTraffic (3)	Shared Traffic/Link LED Mode. The Link LED performs dual role: Solid Green, when Link up. Blink when there is an activity.	

9	VPD Data	Configure
Description: VPD Product Name and Read Data.		
Part Number (1)	VPD Part Number	
Engineering Change (2)	VPD Engineering Change	
Serial Number (3)	VPD Serial Number	
Manufacturing ID (4)	VPD Manufacturing ID	
Read only VPD Data (5)	VPD Read only V0 Data	
Product Name (6)	VPD Product Name	

A	Super Airplane Mode	Configure
Description: Super Airplane mode		
Disable	Disable Super Airplane Mode	
Enable	Enable Super Airplane Mode	

B	MBA Configuration	Configure
Description: MBA Configuration		
VLan Enable (1)	Enabled / Disabled	
VLan ID (2)	VLan ID	
MBA Hide Banner (3)	Enabled / Disabled	
MBA Hot Key (4)	Ctrl-B / Ctrl-S	
MBA Protocol (5)	PXE / RPL / BOOTP / ISCSI	
MBA Config Timeout (6)	MBA Config Timeout value	
MBA Bootstrap (7)	Auto / BBS / INT18 / INT19	
MBA Link Speed (8)	Auto /10HD / 10FD / 100HD / 100FD	

C	Design Type	Configure
Description: Select NIC or LOM based Ethernet controller.		
NIC(1)	Option selected for a plug in network interface card.	
LOM(0)	Option selected for a LAN on motherboard.	

D	L1 PLL Powerdown Disable	Configure
Description: Disable / Enable L1 PLL Powerdown		
Disable(0)	Disable L1 PLL Powerdown	
Enable(1)	Enable L1 PLL Powerdown	

10.8 seprg

cmd: seprg

Description: Program NVRAM and ASF firmware

Syntax: seprg <file_name>

Input file need to be found in the same location as b57diag.exe.

Options:

-d	Do not perform device check
-f<string>	filename
-l<HEX>	length in bytes (Default = size of input file)
-m	Do not restore original MAC address
-o<HEX>	offset of serial nvram (def=00000000)
-s	Do not restore original Serial Number
-a	Program ASF firmware
-u	Program UMP firmware
-c	Skip image CRC check
-p	Restore NVRAM Config data between Bootcode and Selfboot fw *

Example:

1. Program NVRAM with contents of input file seprg.bin

0:> seprg seprg.bin

0:>seprg asffirmware.bin -a

*-p option will restore NVRAM configuration data between Bootcode and selfboot firmware. The configuration data that will be restored are listed below.

a. Wol_enable

b. Wol_Limit_10

c. Driver_wol_enable

d. Lom_design

e. Phy_auto_power_down

f. Reverse_nway

g. Disable_power_saving

h. Phy_led_mode

i. Shasta_ext_led_mode

j. Cable_sense

10.9 upgfrm

cmd: upgfrm

Description: Upgrade ISCSI, PXE, Boot Code and Selfboot Firmware from a File. This command reads code from a file and program into iscsi, pxe or boot area. Both parameter, the programming target '-p', 'b' or '-i' and filename, must be specified. In case of ISCSI firmware, ISCSI Boot Firmware will be updated by default. ISCSI CFG Block will only be updated if there is no ISCSI CFG Block present in NVRAM. ISCSI CFG Program will NOT be programmed by this command. In case of Selfboot Firmware, this command will support Format 0 to Format 1 and Format1 to Format1 update. Format0 to Format0 and Format1 to Format0 update are NOT supported by this command. User will need to use "seprg" command.

Syntax: upgfrm <p | b | i> filename

upgfrm [-f<filename>] [-b | -p | -i] | [-d]

Options:

-b	Upgrade boot code/Selfboot firmware
-d	Do not perform device check
-f<string>	Input file
-p	Upgrade PXE code
-i	Upgrade ISCSI code

10.10 sever

cmd: sever

Description: Display Serial NVRAM Version

Syntax: sever

10.11 sechksum

cmd: sechksum

Description: Check/Update Serial NVRAM checksum

Syntax: sechksum

Options:

-v<DEC> verbose level (0,1) (def=1)

10.12 sedump

cmd: sedump

Description: Dump NVRAM content to a file. The value stored at location 0xC in the NVRAM is the starting address of the code that the chip loads and executes. The code starting address is 0x200 for NVRAM pages aligned on 256 byte boundaries and 0x2F8 for the Atmel device that has a NVRAM page size of 264. If "sedump" is used to generate an image file for a NVRAM/EEPROM burner then "-a" should be used, for an Atmel device, if one wants to preserve the 0x2F8 code starting address that is automatically translated to 0x200 by software without the "-a" option. More details can be found in application note 570X-AN700-R.

Syntax: sedump -f<string> [Len]

Options:

-a<string> no Atmel Flash address translation

-f<string> string is the filename

-l<DEC> length in decimal, use 0 for entire NVRAM image (def=8192)

10.13 asfcfg

cmd: asfcfg

Description: Configure ASF in NVRAM

Syntax: asfcfg [filename]

If [filename] is provided the file is used to configure the ASF configuration information in NVRAM. If asfcfg is entered by it self a menu is present the user and the options of the items listed in the menu are described below.

0	Save to file
Description: Use this menu option save the network adapter's ASF configuration table to a binary file.	

1	ASF Settings	
Description: Provides the sub menu with the options described below.		
	0	Return to previous menu.
	1	Enable/Disable Remote Management Control Protocol (RCMP)
	2	Enable/Disable the transmission of Platform Event Trap (PET) messages.
	3	Enable/Disable transmission of periodic system heartbeat messages.
	4	Interval in seconds between transmitted heartbeat messages.

	5	PET messages (except the system heartbeat) are retransmitted three times. This entry allows the user to specify, in seconds, the interval of time between these transmissions.
	6	Client IP address used for communication.
	7	Management console IP address to which communication is directed.
	8	Gateway IP address used when client and management console are on different subnets.
	9	Subnet mask used to determine client and management console subnets.
	10	Configures link speed for ASF operation when the OS is not present.
	11	Unique value used to by ASF. Usually setup by an OS based configuration utility, based on the SMBIOS system information structure.
	12	Configure the polling interval, in seconds, which legacy SMBus devices are monitored (such as the chassis intrusion sensor).
	13	Specifies, in seconds, the amount of time to wait before polling the first legacy SMBus device.
	14	Send 'ASD Ready' SMBus Msg
	15	Enable/Disable the system to wake up from a low power states when the system receives ASF or RMCP traffic.
	16	Feature is not currently supported.
	17	SNMP community name.

2	ASF Alert Info
3	ASF Alert Data for Legacy Devices
4	ASF Remote Control Data
5	ASF Capabilities Supported
6	ASF SMBus Addresses

Description:
These menu options may be used to override values in the network adapter's ASF Configuration Table that correlate to the following records in the system's "ASF! Description Table":

ASF_INFO
ASF_ALRT
ASF_RCTL
ASF_RMCP
ASF_ADDR

The values in these records are normally copied from the system's "ASF! Description Table" (using the ACPI System Description Table architecture) into the ASF Configuration Table in the network adapter's non-volatile memory by the Broadcom ASF Configuration Utility (ASFConfig). See the Alert Standard Format (ASF) Specification v2.0 for detailed descriptions of these records.

7	Reserved

Description:
Reserved

8	SMBus Init Data

Description:
Not to be used by customers. For Broadcom internal use only.

9	Save and Exit

Description:
Saves the modified ASF Configuration Table to the network adapter's non-volatile memory and exists.

10	Exit without Saving
Description:	
Exits without saving any changes to the ASF Configuration Table.	

10.14 asfmbox

cmd: asfmbox

Description: Create ASF Off-Line Mailboxes in NVRAM.

Syntax: asfmbox [-c | -v | -d | -t]

Options:

-c	Create specified number of ASF Mailboxes
-v	View status of all ASF Mailboxes
-d	Dump contents of specified ASF Mailbox
-t	Test ASF Mailbox NVRAM block

10.15 flshmode

cmd: flshmode

Description: Configure ASF in NVRAM

Syntax: flshmode [auto | passthru | legacy | new]

10.16 flshread

cmd: flshread

Description: Same as seread

Syntax: flshread start[-end | len]

10.17 chkpxe

cmd: chkpxe

Description: Check PXE code image

Syntax: chkpxe <filename>

10.18 dir

cmd: dir

Description: display file directory in NVRAM

Syntax: dir

10.19 erase

cmd: erase

Description: erase file from directory in NVRAM

Syntax: erase <entry> | all

Options:

-y	do not ask for conformation

10.20 pxeprg

cmd: pxeprg

Description: Program PXE firmware into NVRAM. This command reads PXE code from a file and program into NVRAM

Syntax: pxeprg <filename>

10.21 flshdev

cmd: flshdev

Description: Select flash device to access

Syntax: flshdev seeprom | atmelflash | sstflash

10.22 bitbang

cmd: bitbang

Description: Generate bitbang pattern to seeprom bus. Enter hex numbers to be written to seeprom bus. For serial eeprom, use 's' for start, 'p' for stop condition, 'x' with '1..9' specifies how many residual bits to send. For flash, use 's' for chipSelect, 'p' for cancel chipSelect 'r' with a number specifies how many bytes to read.

Syntax: bitbang <data>

10.23 seclock

cmd: seclock

Description: set NVRAM config1 content value after reset.

Syntax: seclock <32bitNewValue>

10.24 setorture

cmd: setorture

Description: NVRAM reset torture test

Syntax: setorture

Options:

-c	Continue on Error
-i<DEC>	Initial Delay in ms (def=0)
-m<DEC>	Maximum Delay in ms (def=3000)
-n<DEC>	iteration (def=1)
-p	Power reset
-r	Random delay
-s<DEC>	Delay incremental time (us) (def=1)

10.25 seinit

cmd: seinit

Description: Initialize NVRAM block.

Syntax: seinit

Options:

-i<DEC>	do not restore NVRAM clock default value (def=0)

10.26 searb

cmd: searb

Description: set/report current NVRAM arbitration bit. Valid arbitraion number is 0..3.

Syntax: searb [n]

10.27 seprotect

cmd: seprotect

Description: set gpio pin for NVRAM write protect. Use 'none' to disable write protect feature.

Syntax: seprotect [0|1|2|none]

10.28 selclock

cmd: selclock

Description: set Legacy EEPROM clock value (bit 16-24 of EEPROM addr reg)

Syntax: selclock <8bitNewValue>

10.29 semap

cmd: semap

Description: Display NVRAM usage

Syntax: semap

10.30 setwol

cmd: setwol

Description: Enable/Disable WOL

Syntax: setwol [e/d]

Options:

-d	Disable WOL
-e	Enable WOL

10.31 setpxe

cmd: setpxe

Description: Enable/Disable PXE

Syntax: setpxe

Options:

-d	Disable PXE
-e	Enable PXE
-s<DEC>	Specify PXE Speed (def=0), 0. auto, 1. 10HD, 2. 10FD, 3. 100HD, 4. 100FD

10.32 setasf

cmd: setasf

Description: Enable/Disable ASF

Syntax: setasf

Options:

-d	Disable ASF
-e	Enable ASF

10.33 secomp

cmd: secomp

Description: compare eeprom content against the file

Syntax: secomp

Options:

-c	continue on error
-f<string>	filename
-l<HEX>	length (def=00000000)
-o<HEX>	offset (def=00000000)

10.34 dreset

cmd: dreset

Description: double reset test for EEPROM debug

Syntax: dreset

10.35 userblock

cmd: userblock

Description: create a userblock in NVRAM

Syntax: userblock

10.36 setmba

cmd: setmba

Description: Enable Multiple Boot Agent

Syntax: setmba

Options:

-d	Disable MBA
-e<DEC>	Enable MBA Protocol (def=0), 0. PXE, 1. RPL, 2. BOOTP
-s<DEC>	Specify MBA Speed (def=0), 0. auto, 1. 10HD, 2. 10FD, 3. 100HD, 4. 100FD

10.37 segencrc

cmd: segencrc

Description: Append a CRC to the specified block

Syntax: segencrc <start-end> | <start length>

10.38 secfg1

cmd: secfg1

Description: Configure NVRAM Group 1

Syntax: secfg1

Options:

-m	Mac address xx:xx:xx:xx:xx:xx
-r	Power Dissipated D3:D2:D1:D0
-c	Power Consumed D3:D2:D1:D0
-v	Vendor ID

-d	Vendor Device ID
-s	SubSystem Vendor ID
-i	SubSystem Device ID
-p	PXE 1:Enable 2:Disable
-x	PXE SP 0:Auto 1:10HD 2:10FD 3:100HD 4:100FD 6:1000FD (TBI)
-w	Magic Packet WOL 1:Enable 2:Disable

10.39 secfg2

cmd: secfg2

Description: Configure NVRAM Group 2

Syntax: secfg2

Options:

-p	Product Name
-n	Part Number
-e	Engineering Change
-s	Serial Number
-m	Manufacturing ID
-a	Asset Tag
-r	Part Rev
-v	Voltage
-f	Force PCI Mode 1:Enable 2:Disable

10.40 secfg3

cmd: secfg3

Description: Configure NVRAM Group 3

Syntax: secfg3

Options:

-l Led Mode 0:Mac 1:Phy1 2:Phy2 3:S Traffic 4:Shasta Mac 5:Wireless Combo

-r Max PCI Retry 0-7, 8:Auto

-a ASF 1:Enable 2:Disable

-d Dual Mac 0:Norm 1:MacB 2:MacA 3:XBAR 4:Swap 7:SwapXBAE

-m MBA Boot Protocol 0:PXE 1:RPL 2:BOOTP

-b MBA Bootstrap Type 0:Auto 1:BBS 2:Int18 3:Int19

-t MBA Delay Time 0-15

-e Exp ROM 0:64K 1:128K 2:256K 3:512K 4:1M 5:2M 6:4M 7:8M 8:16M

-n Design Type 0:NIC 1:LOM

-m MBA Boot Protocol 0:PXE 1:RPL 2:BOOTP 3:ISCSI

10.41 secfg4

cmd: secfg4

Description: Configure NVRAM Group 4

Syntax: secfg4

Options:

-v Read VPD Vendor Data V0

-w Read/Write VPD Vendor Data V1

-n Reversed Nway 0:No 1:Yes

-s Limit WOL Speed to 10 0:No 1:Yes

-f Fiber WOL Capable 0:No 1:Yes

-c Clock-Run 0:Disable 1:Enable

-p Enable Phy Auto Power Down 0:No 1:Yes

-d Disable Power Saving 0:No 1:Yes

-h Hide MBA Setup Prompt 0:Disable 1:Enable

-k MBA Setup Hot Key 0:Ctrl-S 1:Ctrl-B

-i Capacitive Coupling 0:Disable 1:Enable

10.42 secfg5

cmd: secfg5

Description: Configure NVRAM Group 5

Syntax: secfg5

Options:

-i Capacitive Coupling 0:Dis 1:En

-e SERDES Tx Drvr Pre-Emp - Primary

-t SERDES Tx Drvr Pre-Emp - Secondary

-z SERDES Tx Drvr Pre-Emp - ENABLE

-u Encoded Hot Plug Power Value 1 & 2 For NIC

-d Encoded Hot Plug Power Value 3 & 4 For NIC

-r Encoded Hot Plug Power Value 5 & 6 For NIC

-q Encoded Hot Plug Power Value 7 & 8 For NIC

-h Hot Plug Power For NIC - Enable

-a ASF/IPMI SMB Address for Pri. Port

-b IPMI SMB Address for Sec. Port

-c Cable Sense - Enable

-x GPIO 0 Config 0:Input 1:OutputH 2: OutputL (5714LOM and 5715 LOM only)

-y GPIO 2 Config 0:Input 1:OutputH 2: OutputL (5714LOM and 5715 LOM only)

10.43 setipmi

cmd: setipmi

Description: Enable/Disable IPMI

Syntax: setipmi

Options:

-d	Disable IPMI
-e	Enable IPMI

10.44 loadfw

cmd: loadfw

Description: Load Firmware to Tx/RX CPUs

Syntax: loadfw

Options:

-b<HEX>	set breakpoint (0=off) (def=00000000)
-d<HEX>	data pattern to be used for memory init. (def=00000000)
-f<string>	filename (for bcmediag compatibility)
-I	don't initialize memory before loading, def=yes
-m	don't turn on CPU Trace (def=on)
-s	don't start cpu
-t	load to tx cpu, def=rxpcu
-v	disable verbose

10.45 cpudtt

cmd: cpudtt

Description: Read and display TX CPU trace (not valid for 5705)

Syntax: cpudtt <begin_addr>[- end_addr | num_bytes]

Address range: 0x00 – 0x80

Example:

1. Read and display TX CPU trace from location 0x00 to 0x04.

```
0:> cpudtt 0-5
000  t0000002f c0000000 00000000 00000000 00000000 00000000
001  t00000000 00000000 00000000 00000000 00000000 00000000
002  t00000000 00000000 00000000 00000000 00000000 00000000
003  t00000000 00000000 00000000 00000000 00000000 00000000
```

```
004  t00000000 00000000 00000000 00000000 00000000 00000000
```

2. Read and display 4 locations of TX CPU trace from start from location 0x00.

```
0:> cpudtt 0 5
000 MainCpuB t0000002f c0000000 00000000 00000000 00000000 00000000
001  t00000000 00000000 00000000 00000000 00000000 00000000
002  t00000000 00000000 00000000 00000000 00000000 00000000
003  t00000000 00000000 00000000 00000000 00000000 00000000
```

10.46 cpudrt

cmd: cpudrt

Description: Read and display RX CPU trace (not valid for 5705)

Syntax: cpudrt <begin_addr>[- end_addr | num_bytes]

Address range: 0x00 – 0x80

Example:

1. Read and display RX CPU trace from location 0x00 to 0x04.

```
0:> cpudrt 0-5
000 MainCpuA t00000030 164414e4 e1000004 00000000 164414e4 00000000
001 *BUpCpuA t00000032 00000000 08000034 00440400 00001c40 00000000
002 *BUpCpuA t00000001 00000001 08000034 00440000 00000000 00000000
003  t00000000 00000000 00000000 00000000 00000000 00000000
004  t00000000 00000000 00000000 00000000 00000000 00000000
```

2. Read and display 4 locations of RX CPU trace from start from location 0x00.

```
0:> cpudrt 0 5
000 t00000030 164414e4 e1000004 00000000 164414e4 00000000
001 t00000032 00000000 08000034 00440400 00001c40 00000000
002 t00000001 00000001 08000034 00440000 00000000 00000000
003 t00000000 00000000 00000000 00000000 00000000 00000000
```

10.47 cputrace

cmd: cputrace

Description: toggles cpu trace mode

Syntax: cputrace [1|0]

10.48 haltcpu

cmd: haltcpu

Description: Halt CPU

Syntax: haltcpu

10.49 loadbootcode

cmd: loadbootcode

Description: execute bootcode from file instead of NVRAM

Syntax: loadbootcode <filename>

Options:

-d<HEX>	data pattern to be used for memory init. (def=00000000)
-f<string>	filename
-i	don't initialize memory before loading, def=yes
-m	don't turn on CPU Trace (def=on)
-s	don't start cpu
-t	load to tx cpu, def=rxpcu
-v	disable verbose

10.50 disasm

cmd: disasm

Description: Disassemble MIP instructions

Syntax: disasm [address [line]]

10.51 step

cmd: step

Description: Step MIP instructions

Syntax: step

10.52 go

cmd: go

Description: start CPU

Syntax: go

10.53 showgpr

cmd: showgpr

Description: toggles showing cpu gpr mode

Syntax: showgpr 1|0

10.54 pc

cmd: pc

Description: set current CPU PC

Syntax: pc

10.55 breakpoint

cmd: breakpoint

Description: set current CPU breakpoint

Syntax: breakpoint

10.56 select

cmd: select

Description: select current CPU

Syntax: select <r|t>

10.57 u

cmd: u

Description: Alias of disasm command

Syntax: u [address [line]]

10.58 trap

cmd: trap

Description: trap cpu memory

Syntax: trap <low> <high> | off

10.59 cpuinfo

cmd: cpuinfo

Description: display cpu information

Syntax: cpuinfo [r|t]

10.60 cpugprstatus

cmd: cpugprstatus

Description: Display internal CPU GPR test status

Syntax: cpugprstatus

10.61 cpugprrestart

cmd: cpugprrestart

Description: Restart internal CPU GPR test

Syntax: cpugprrestart

10.62 cpufetch

cmd: cpufetch

Description: Test CPU Instruction fetch logic with 1.1V and 1.3 V setting

Syntax: cpufetch

10.63 dmaw

cmd: dmaw

Description: DMA from NIC to Host Memory

Syntax; dmaw

Options:

-3	Force to use 32-bit bus
-4	Allocate 4k-aligned buffers
-a<HEX>	NIC address to DMA data from (def=00000000)
-b	byte swap

-c	Continousely dma data
-d<HEX>	delay poll dma done polling (def=00000000)
-f<string>	filename
-h	Use high priority DMA Write
-l<HEX>	Length of DATA in bytes to DMA (def=00000100)
-n<DEC>	iteration
-o<HEX>	Buffer offset (def=00000000)
-p<HEX>	Pattern of Data. 0 - byte increment ; 1- byte decrement 2 - FF's ; 3 - 00's ; 4- AA 55 ... ; 5 - 55 AA ... 6 - FFFFFFFF 000000000 FFFFFFFF 00000000 7 - FFFFFFFFFFFFFFFF 0000000000000000 FFFFFFFFFFFFFFFF 8 - FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF 0000000000000... 9 - 00000000000000000000000000000000 FFFFFFFFFFFF... a - Word Increment ; b - Dword Increment c - Word Decrement ; d - Dword Decrement e - ffffffff00000000 00000000ffffffbf f - 00000000ffffffff ffffffbf00000000 10 - 64-bit-pattern 0000000000000000 64-bit-pattern ... 11 - 64-bit-pattern ffffffffffffffff 64-bit-pattern ... (def=00000000)
-q<HEX>	low 32-bit of 64-bit pattern (def=FFFFFFFF)
-v<DEC>	Verbose (1..2) (def=2)
-w	word swap
-x<HEX>	high 32-bit of 64-bit pattern (def=FFFFFFFF)
-K<HEX>	DMA write to abosolute address and hang the system (def=00000000)

Example:

1. Setup DMA NIC Memory to HOST memory. Using low priority DMA Read and disable byte swap and enable detail display.

```
1:> dmaw -a=0 -l=10
Device 1
Host Address :  0x0068bb38
NIC Address  :  0x00000000
Length       :  0x0010
Priority     :  Low
```

```
Byte Swap    :  No
Word Swap    :  No

   Dev 1: DMA SRAM 00000000 to Host 0068BB38
```

10.64 dmar

cmd: dmar

Description: DMA from Host to NIC Memory

Syntax: dmar

Options:

-w	word swap
-3	Force to use 32-bit
-4	Allocate 4k-aligned buffers
-a<HEX>	NIC address to DMA data to (def=00000000)
-b	Byte Swap
-c	Continousely dma
-d<HEX>	delay poll dma done polling (def=00000000)
-f<string>	File name of file that contains <length,patterns ....>
-h	Use high priority DMA Read
-l<HEX>	Length of DATA to do DMA (def=00000100)
-n<DEC>	iteration
-o<HEX>	Buffer offset (def=00000000)
-p<HEX>	Pattern of Data 0 - byte increment ; 1- byte decrement 2 - FF's ; 3 - 00's ; 4- AA 55 ... ; 5 - 55 AA ... 6 - FFFFFFFF 000000000 FFFFFFFF 00000000 7 - FFFFFFFFFFFFFFFF 0000000000000000 FFFFFFFFFFFFFFFF 8 - FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF 0000000000000... 9 - 00000000000000000000000000000000 FFFFFFFFFFFF... a - Word Increment ; b - Dword Increment c - Word Decrement ; d - Dword Decrement (def=00000000)

-q<HEX> low 32-bit of 64-bit pattern (def=FFFFFFFF)

-v<DEC> Verbose (1..2) (def=2)

-w Word Swap

-x<HEX> high 32-bit of 64-bit pattern (def=FFFFFFFF)

-K<HEX> DMA read from abosolute address (def=00000000)

Example:

1. Sup DMA host memory to NIC memory. Using low priority DMA Read and disable byte swap.

```
1:> dmar -a=0 -l=100
Device 1
Host Address :  0x0068bb38
NIC Address  :  0x00000000
Length       :  0x0100
Priority     :  Low
Byte Swap    :  No
Word Swap    :  No

   Dev 1: DMA Host 0068BB38 to SRAM 00000000
```

10.65 dma_h

cmd: dma_h

Description: Dump DMA Entries

Syntax: dma_h <start> <end>

10.66 dma_d

cmd: dma_d

Description: Dump DMA Entries with Decode

Syntax: dma_d <start> <end>

10.67 maclpk

cmd: maclpk

Description: Configure MAC loopback, 0 to disable, otherwise enable MAC loopback

Syntax: maclpk <n>

0 to disable. Otherwise enable

Example:

1. Driver must be loaded before configure.

```
0:> loaddrv
```

2. Enable MAC loop back.

```
0:> mcaclpb 1
Enabling MAC loopback ... OK
```

2. Disable MAC loop back.

```
0:> maclpb 0
Disabling MAC loopback ... OK
```

10.68 blast

cmd: blast

Description: Blast Packets in Poll Mode and display statistics. Load MAC driver before running the test.

Syntax: blast

Options:

-a<DEC>	IP total length (def=0)
-c<DEC>	Number of Tx buffer (def=100)
-d<DEC>	Interpacket GAP in microseconds (def=0)
-e<DEC>	Upper Limit of Tx buffer in incremental packet size (def=1514)
-f<string>	Sniffer file containing contents of Tx packets
-g<DEC>	Rx Threshold (def=5)
-h	Enable Host Loopback
-I	Increment length
-j	Regenerate CRC-32 in host loopback mode
-k	Applies CRC-32 check on Rx path
-l<DEC>	Length of Tx packet (def=60)
-m	Generate TPROT packets
-n<DEC>	Number of packets to be transmitted (def=0)

-o<DEC>	Number of Rx Rings (def=1)
-p	Send protocol packets configured with txcfg command.
-q	Use software CRC-32 on Tx Path
-r	Enable Rx
-s	Stop on Failure
-t	Enable Tx
-w<DEC>	Low watermark max RxFrame value (0-65535)
-x	Check length of received packet
-z<DEC>	Tx Threshold (def=5)
-P	Pause
-R	Enable RS232 statistic update
-S	TCP segment test
-T<DEC>	Packet Type, 0:None, 1:Eth2, 2:802.3, 4:SNAP
-W	Check DMA_Write error status

Example:

1. Load MAC driver and enable transmission.

```
0:packet> loaddrv
Reinitializing PCI Configuration Space
Bus Number       : 1
Device/Funtion   : 11/0
Base Address     : 0xfb010000
IRQ              : 9
Bringing up MAC driver ... OK
PHY calculated ID: 60008162
BCM5702/03 Internal Phy Rev#2
Configuring BCM54xx ... Done
Determining Link Speed ... 1000Base-T Full Duplex
0:packet> blast –t
PageUP/PageDN to scroll. Ins/Del toggles refresh. ESC to exit
                                Total                  Rate
                          ==================     ==================
Txed Packets (Ring#0)     :             1007609                507523
Txed Packets (Ring#1)     :                   0                     0
Txed Packets (Ring#2)     :                   0                     0
Txed Packets (Ring#3)     :                   0                     0
Tx Packets Enqed (Ring#0) :                   0                     0
Tx Packets Enqed (Ring#1) :                   0                     0
Tx Packets Enqed (Ring#2) :                   0                     0
Tx Packets Enqed (Ring#3) :                   0                     0
Rxed Packets (Ring#00)    :                   0                     0
Rxed Packets (Ring#01)    :                   0                     0
```

```
Rxed Packets (Ring#02)    :                0                    0
Rxed Packets (Ring#03)    :                0                    0
Rxed Packets (Ring#04)    :                0                    0
Rxed Packets (Ring#05)    :                0                    0
Rxed Packets (Ring#06)    :                0                    0
Rxed Packets (Ring#07)    :                0                    0
Rxed Packets (Ring#08)    :                0                    0
Rxed Packets (Ring#09)    :                0                    0

      PageUP/PageDN to scroll. Ins/Del toggles refresh. ESC to exit
```

10.69 nicstats

cmd: nicstats

Description: Display NIC Statistics

Syntax: nicstats <-c>

-c : Clear Statistics

Example: Load driver if driver is not loaded.

```
0:> loaddrv
Reinitializing PCI Configuration Space
Bus Number       : 1
Device/Funtion   : 11/0
Base Address     : 0xfb010000
IRQ              : 9
Bringing up MAC driver ... OK
PHY calculated ID: 60008162
BCM5702/03 Internal Phy Rev#2
Configuring BCM54xx ... Done
Determining Link Speed ... 1000Base-T Full Duplex
0:> nicstats
                                      Total                Rate
                                  ==================   ==================
Txed Packets (Ring#0)     :                0                    0
Txed Packets (Ring#1)     :                0                    0
Txed Packets (Ring#2)     :                0                    0
Txed Packets (Ring#3)     :                0                    0
Tx Packets Enqed (Ring#0) :                0                    0
Tx Packets Enqed (Ring#1) :                0                    0
Tx Packets Enqed (Ring#2) :                0                    0
Tx Packets Enqed (Ring#3) :                0                    0
Rxed Packets (Ring00)     :                0                    0
Rxed Packets (Ring01)     :                0                    0
Rxed Packets (Ring02)     :                0                    0
Rxed Packets (Ring03)     :                0                    0
Rxed Packets (Ring04)     :                0                    0
Rxed Packets (Ring05)     :                0                    0
Rxed Packets (Ring06)     :                0                    0
Rxed Packets (Ring07)     :                0                    0
Rxed Packets (Ring08)     :                0                    0
Rxed Packets (Ring09)     :                0                    0

      PageUP/PageDN to scroll. Ins/Del toggles refresh. ESC to exit

Total                   Rate
                    ==================   ==================
```

```
Rxed Packets (Ring#10)    :                0                    0
Rxed Packets (Ring#11)    :                0                    0
Rxed Packets (Ring#12)    :                0                    0
Rxed Packets (Ring#13)    :                0                    0
Rxed Packets (Ring#14)    :                0                    0
Rxed Packets (Ring#15)    :                0                    0
Rxed CRC-32 Errors        :                0                    0
Out of Memory             :                0                    0
Too Many Frag Pkt         :                0                    0


  PageUP/PageDN to scroll. Ins/Del toggles refresh. ESC to exit

CHIP Statistics
=============================================================================
ifHCInOctets           :          0   etherStatsFragments     :          0
ifHCInUcastPkts        :          0   ifHCInMulticastPkts     :          0
ifHCInBroadcastPkts    :          0   d3StatsFCSErrors        :          0
d3StatsAlignmentErrors :          0   xonPauseFramesReceived  :          0
xoffPauseFramesReceived:          0   macControlFramesReceived:          0
xoffStateEntered       :          0   dot3StatsFramesTooLong  :          0
etherStatsJabbers      :          0   etherStatsUndersizePkts :          0
inRangeLengthError     :          0   outRangeLengthError     :          0
etherStatsPkts64Octets :          0   etherStatsPkts65-127    :          0
etherStatsPkts128-255  :          0   etherStatsPkts256-511   :          0
etherStatsPkts512-1023 :          0   etherStatsPkts1024-1522 :          0
etherStatsPkts1523-2047:          0   etherStatsPkts2048-4095 :          0
etherStatsPkts4096-8191:          0   etherStatsPkts8192-9022 :          0
ifHCOutOctets          :          0   etherStatsCollisions    :          0
outXonSent             :          0   outXoffSent             :          0
flowControlDone        :          0   d3StatsIntlMacTxErrors  :          0
d3StatsSingleColFrames :          0   d3StatsMultipleColFrames:          0
dt3StatsDeferredTx     :          0   d3StatsExcessiveCol     :          0


  PageUP/PageDN to scroll. Ins/Del toggles refresh. ESC to exit

CHIP Statistics
=============================================================================
d3StatsLateCol         :          0   d3Collided2Times        :          0
d3Collided3Times       :          0   d3Collided4Times        :          0
d3Collided5Times       :          0   d3Collided6Times        :          0
d3Collided7Times       :          0   d3Collided8Times        :          0
d3Collided9Times       :          0   d3Collided10Times       :          0
d3Collided11Times      :          0   d3Collided12Times       :          0
d3Collided13Times      :          0   d3Collided14Times       :          0
d3Collided15Times      :          0   ifHCOutUcastPkts        :          0
d3StatsCarSenseErrors  :          0   ifOutDiscards           :          0
COSIfHCInPkts[00]      :          0   COSIfHCInPkts[01]       :          0
COSIfHCInPkts[02]      :          0   COSIfHCInPkts[03]       :          0
COSIfHCInPkts[04]      :          0   COSIfHCInPkts[05]       :          0
COSIfHCInPkts[06]      :          0   COSIfHCInPkts[07]       :          0
COSIfHCInPkts[08]      :          0   COSIfHCInPkts[09]       :          0
COSIfHCInPkts[10]      :          0   COSIfHCInPkts[11]       :          0
COSIfHCInPkts[12]      :          0   COSIfHCInPkts[13]       :          0
COSIfHCInPkts[14]      :          0   COSIfHCInPkts[15]       :          0
COSFrmsDxDueToFilters  :          0   nicDmaWriteQueueFull    :          0
nicDmaWrHiPQFull       :          0   nicNoMoreRxBDs          :          0


  PageUP/PageDN to scroll. Ins/Del toggles refresh. ESC to exit

PageUP/PageDN to scroll. Ins/Del toggles refresh. ESC to exit
```

```
                     CHIP Statistics
=============================================================================
ifInDiscards           :          0   ifInErrors              :          0
nicRecvThresholdHit    :          0   nicDmaReadQueueFull     :          0
COSIfHCOutPkts[00]     :          0   COSIfHCOutPkts[01]      :          0
COSIfHCOutPkts[02]     :          0   COSIfHCOutPkts[03]      :          0
COSIfHCOutPkts[04]     :          0   COSIfHCOutPkts[0
Rxed Packets (Ring#05)    :                 0                      0
Rxed Packets (Ring#06)    :                 0                      0
Rxed Packets (Ring#07)    :                 0                      0
Rxed Packets (Ring#08)    :                 0                      0
Rxed Packets (Ring#09)    :                 0                      0


  PageUP/PageDN to scroll. Ins/Del toggles refresh. ESC to exit
```

10.70 ringIndex

cmd:

Description: Dump Ring Index. Load Mac driver before running.

Syntax: ringindex t | r

Options:

-n<DEC>	Number of Rx Ring to dump (Default=1) (def=1)
-r	Dump Rx Ring Index
-t	Dump Tx Ring Index

Example:

1 Load MAC dirver and display TX and RX Ring Index.

```
0:> loaddrv
Bus Number       : 1
Device/Funtion   : 11/0
Base Address     : 0xfb010000
IRQ              : 9
Bringing up MAC driver ... OK
PHY calculated ID: 60008162
BCM5702/03 Internal Phy Rev#2
Configuring BCM54xx ... Done
Determining Link Speed ... 1000Base-T Full Duplex
0:> ringindex rt

                 Mailbox   RBDI    RBDC    HC    StsBlk  Driver
                 =======  ======  ======  ======  =======  ======
RxStdPidx          100     100      100     ---     ---      100
RxStdCidx          ---     ---      ---     000     000      000
RetRPidx#00        ---     ---      ---     000     ---      ---
RetRCidx#00        000     ---      ---     ---     ---      000


                 Mailbox   SBDI   SBDSEL   HC   StsBlk   Driver
                 =======  ======  ======  ======  =======  ======
SendHostPidx#00    000      000     ---     ---     ---      000
```

```
SendHostCidx#00   ---      ---      000    000    000      000
SendHostPidx#01   000      000      ---    ---    ---      000
SendHostCidx#01   ---      ---      000    000    000      000
SendHostPidx#02   000      000      ---    ---    ---      000
SendHostCidx#02   ---      ---      000    000    000      000
SendHostPidx#03   000      000      ---    ---    ---      000
SendHostCidx#03   ---      ---      000    000    000      000
```

10.71 phyctrl

cmd: phyctrl

Description: Configure Phy Speed

Syntax: phyctrl

Options:

-f<string>	file contains initialization scripts
-h	force half duplex
-r	reset PHYs
-s<HEX>	0:10 Mbps, 1:100 Mbps, 2:1000 Mbps, 3 - Auto (def=00000002)

10.72 txpkt

cmd: txpkt

Description: Transmit Packets. Driver must be loaded.

Syntax: txpkt

Options:

-a<DEC>	Specify number of IP fragment count (def=0)
-b<DEC>	Burst length (def=0)
-c	Clear Statistics (always on: kept for bcmediag compatibility
-d<DEC>	Interpacket delay in microseconds (def=txcfg)
-e	Insert raw checksum into the packet
-f<DEC>	Max number of fragments (def=1)
-g<HEX>	Tx Flags (def=txcfg)
-h<DEC>	Specifies IP total length (Default: correct IP length)

-I	Incremental length
-j	Random number of fragments
-k	Use random packet length
-l<DEC>	Start packet length (def=txcfg)
-m	Use multiple Tx ring test (def=txcfg)
-n<DEC>	Number of packet to transmit (def=0)
-o<HEX>	Buffer Offset (def=00000000)
-p<DEC>	Number of Tx rings to use in multiple ring test (def=txcfg)
-q<DEC>	Number of Packets per ring (def=txcfg)
-r<DEC>	Tx ring number (def=txcfg)
-v	Insert fragment count and fragment size into the packet
-x	Display Statistics (always on: kept for bcmediag compatibility
-u	Standard Fragmentation
-w<DEC>	Low watermark max RxFrame value (0-65535)
-z<DEC>	Minimum fragment size, -1=disable (def=-1)
-A	Use static buffer
-L	Don't initialize packets
-R	Enable RS232 statistic update
-S	TCP segmentation test

10.73 statusblk

cmd: statusblk

Description: Display Status Block

Syntax: statusblk

Example:

```
0:> statusblk
```

```
************** STATUS Block @ 0x0027c040 *************
Status : 0x0000
Rx Standard CIdx : 0    Rx Jumbo CIdx : 0     Rx Mini CIdx : 0
Rx PIdx[00]  :   0            Send CIdx[00]  :   0
Rx PIdx[01]  :   0            Send CIdx[01]  :   0
Rx PIdx[02]  :   0            Send CIdx[02]  :   0
Rx PIdx[03]  :   0            Send CIdx[03]  :   0
Rx PIdx[04]  :   0            Send CIdx[04]  :   0
Rx PIdx[05]  :   0            Send CIdx[05]  :   0
Rx PIdx[06]  :   0            Send CIdx[06]  :   0
Rx PIdx[07]  :   0            Send CIdx[07]  :   0
Rx PIdx[08]  :   0            Send CIdx[08]  :   0
Rx PIdx[09]  :   0            Send CIdx[09]  :   0
Rx PIdx[10]  :   0            Send CIdx[10]  :   0
Rx PIdx[11]  :   0            Send CIdx[11]  :   0
Rx PIdx[12]  :   0            Send CIdx[12]  :   0
Rx PIdx[13]  :   0            Send CIdx[13]  :   0
Rx PIdx[14]  :   0            Send CIdx[14]  :   0
Rx PIdx[15]  :   0            Send CIdx[15]  :   0
```

10.74 stsblk

cmd: stsblk

Description: Display Statistics Block.

Syntax: stsblk

Example:

```
0:> stsblk
************** STATISTICS Block @ 0x0027c0c0 *************
ifHCInOctets                  :          0   etherStatsFragments     :          0
ifHCInUcastPkts               :          0   ifHCInMulticastPkts     :          0
ifHCInBroadcastPkts           :          0   d3StatsFCSErrors        :          0
d3StatsAlignmentErrors        :          0   xonPauseFramesReceived  :          0
xoffPauseFramesReceived       :          0   macControlFramesReceived:          0
xoffStateEntered              :          0   dot3StatsFramesTooLong  :          0
etherStatsJabbers             :          0   etherStatsUndersizePkts :          0
inRangeLengthError            :          0   outRangeLengthError     :          0
etherStatsPkts64Octets        :          0   etherStatsPkts65-127    :          0
etherStatsPkts128-255         :          0   etherStatsPkts256-511   :          0
etherStatsPkts512-1023        :          0   etherStatsPkts1024-1522 :          0
etherStatsPkts1523-2047       :          0   etherStatsPkts2048-4095 :          0
etherStatsPkts4096-8191       :          0   etherStatsPkts8192-9022 :          0
ifHCOutOctets                 :          0   etherStatsCollisions    :          0
outXonSent                    :          0   outXoffSent             :          0
flowControlDone           :          0   d3StatsIntlMacTxErrors  :          0
d3StatsSingleColFrames    :          0   d3StatsMultipleColFrames:          0
dt3StatsDeferredTx        :          0   d3StatsExcessiveCol     :          0
d3StatsLateCol            :          0   d3Collided2Times        :          0
d3Collided3Times          :          0   d3Collided4Times        :          0
d3Collided5Times          :          0   d3Collided6Times        :          0
d3Collided7Times          :          0   d3Collided8Times        :          0
d3Collided9Times          :          0   d3Collided10Times       :          0
d3Collided11Times         :          0   d3Collided12Times       :          0
d3Collided13Times         :          0   d3Collided14Times       :          0
d3Collided15Times         :          0   ifHCOutUcastPkts        :          0
d3StatsCarSenseErrors     :          0   ifOutDiscards           :          0
COSIfHCInPkts[00]         :          0   COSIfHCInPkts[01]       :          0
COSIfHCInPkts[02]         :          0   COSIfHCInPkts[03]       :          0
COSIfHCInPkts[04]         :          0   COSIfHCInPkts[05]       :          0
COSIfHCInPkts[06]         :          0   COSIfHCInPkts[07]       :          0
COSIfHCInPkts[08]         :          0   COSIfHCInPkts[09]       :          0
COSIfHCInPkts[10]         :          0   COSIfHCInPkts[11]       :          0
COSIfHCInPkts[12]         :          0   COSIfHCInPkts[13]       :          0
```

```
COSIfHCInPkts[14]         :          0   COSIfHCInPkts[15]       :          0
COSFrmsDxDueToFilters     :          0   nicDmaWriteQueueFull    :          0
nicDmaWrHiPQFull          :          0   nicNoMoreRxBDs          :          0
ifInDiscards              :          0   ifInErrors              :          0
nicRecvThresholdHit       :          0   nicDmaReadQueueFull     :          0
COSIfHCOutPkts[00]        :          0   COSIfHCOutPkts[01]      :          0
COSIfHCOutPkts[02]        :          0   COSIfHCOutPkts[03]      :          0
COSIfHCOutPkts[04]        :          0   COSIfHCOutPkts[05]      :          0
COSIfHCOutPkts[06]        :          0   COSIfHCOutPkts[07]      :          0
COSIfHCOutPkts[08]        :          0   COSIfHCOutPkts[09]      :          0
COSIfHCOutPkts[10]        :          0   COSIfHCOutPkts[11]      :          0
COSIfHCOutPkts[12]        :          0   COSIfHCOutPkts[13]      :          0
COSIfHCOutPkts[14]        :          0   COSIfHCOutPkts[15]      :          0
nicDmaRdHPQueueFull       :          0   nicSendDataCompQueueFull:          0
nicRingSetSdPIdx          :          0   nicRingStatusUpdate     :          0
nicInterrupts             :          0   nicAvoidedInterrupts    :          0
nicSendThresholdHit       :          0
Phy CRC counter           :          0
```

10.75 txcfg

cmd: txcfg

Description: Configure protocol packets for transmission

Syntax: txcfg

Example:

```
0:> txcfg
 1. Source MAC                                  : 10:11:12:13:14:15
 2. Destination MAC                             : 00:01:02:03:04:05
 3. Length (14-65535)                           : 1514
 4. Packet Type {Non(0),EthV2(1),802.3(2),SNAP(3)}: Ethernet II
 5. Protocol Field {Non(0),IP(1),ARP(2),BRM(3)}   : IP
 6. Source IP                                   : 10.2.1.1
 7. Destination IP                              : 10.2.1.2
 8. IP Protocol Field { UDP(17), TCP(6) }       : UDP
      80. Source Port                           : 100
      81. Destination Port                      : 200
 9. IP Option Length (32-bit Words)             : 0
10. TCP Option Length (32-bit Words)            : 0
11. Pattern { As-is(0), Inc(1), Random(2), 0s(3), FFs(4),
    AA55(5), 55AA(6),IP_Iden-Inc(7),Load from file(8)
    00ff8(9) 00ff16(10), 00ff32(11), 00ff(12)}   : Increment (00,01,02 ...)
12. IP Checksum Offload{ YES(1), NO(0) }        : NO
13. TCP/UDP Checksum Offload { YES(1), NO(0) }  : NO
14. TCP/UDP Pseudo Checksum Only { YES(1), NO(0) }: NO
15. Insert VLAN Tag { YES(1), NO(0) }           : NO
16. VLAN Tag                                    : 1
17. Random IP header field { YES(1), NO(0) }    : NO
18. Random TCP/UDP header field { YES(1), NO(0) } : NO
 0. Exit

Enter your choice (option=paramter) ->
```

10.76 rxcfg

cmd: rxcfg

Description Configure RX parameters.

Syntax: rxcfg

Example:

```
0:> rxcfg
 1. Host Loopback { Enable(1), Disable(0) }       : Disable
 2. Modify Rx Packet { Enable(1), Disable(0) }    : Disable
 3. Dump Rx Packet { None(1),Hex(2), Decode(3) }  : None
 4. Dump Rx Length                                : 64
 5. Tx Fragment Length                            : 1518
 6. Tx Flags                                      : 0000
 7. Tx VLAN Tag                                   : 0000
 8. Tx Ring Number                                : 0
 9. Tx Generate CRC { Enable(1), Disable(0) }     : Enable
10. Capture Rx Pacpket { Enable(1), Disable(0) }  : Enable
11. Rx Mask
 0. Exit

Enter your choice (option=paramter) ->
```

10.77 tprot

cmd: tprot

Description: Blast with TPROT Packets. This command is same as command 'blast -trm'

Syntax: tprot

Options:

-d<DEC> Interpacket gap in microseconds (def=10)

10.78 qstat

cmd: qstat

Description: Get a quick NIC statistic. [qstat string] used to select specific statistic.

Syntax: qstat [qstat string]

Options:

-c Clear statistic

-l List all qstat string

10.79 drvrcfg

cmd: drvrcfg

Description: configure driver parameters

Syntax: drvrcfg

Options:

-a<DEC> Turn on/off autolink capability (def=0)

-q<DEC> Configure Rx ring size (def=0)

-r<DEC> Turn on/off rxflow capability (def=0)

-t<DEC> Turn on/off txflow capability (def=0)

-x<DEC> Configure Tx ring size (def=0)

10.80 irt

cmd: irt

Description: Test an individual register. Test an individual register with a specified number of reads/writes.

Syntax: irt

Options:

-n<DEC> Number of read/write accesses (def=1)

-r<string> Register offset

10.81 macmrd

cmd: macmrd

Description: Test an individual register. Test an individual register with a specified number of reads/writes.

Syntax: macmrd

Options:

-d<DEC> Delay in uS (def=0)

-n<DEC> Number of read/write accesses (def=1)

-r<string> Register offset

10.82 miimrd

cmd: miimrd

Description: Test an individual register. Test an individual register with a specified number of reads/writes.

Syntax: miimrd

Options:

-d<DEC> Delay in uS (def=0)

-n<DEC> Number of read/write accesses (def=1)

-r<string> Register offset

10.83 pcimrd

cmd: pcimrd

Description: Test an individual register. Test an individual register with a specified number of reads/writes.

Syntax: pcimrd

Options:

-d<DEC> Delay in uS (def=0)

-n<DEC> Number of read/write accesses (def=1)

-r<string> Register offset

10.84 mwrite

cmd: mwrite

Description: Write PHY registers via MII Management interface

Syntax: mwrtie <addr > <data>

Address range: 0x00 – 0x1F

Example:

1. Write 0x15 to MII register 2

```
0:> mwrite 2 15
```

10.85 mread

cmd: mread

Description: Read PHY registers via MII Management interface

Syntax: mread <begin>[-<end> | <len>]

Address range: 0x00 – 0x1F

Example:

1. Read MII register 0

```
0:> mread 0
00:  1100
```

2 Read MII registers 0 to 10

```
0:> mread 0-10
00:  1100 7949 0020 6051 01e1 0000 0004 2001
08:  0000 0300 0000 0000 0000 0000 0000 3000
10:  0002
```

3. Read 5 MII registers start from register 0

```
0:> mread 0 5
00:  1100 7949 0020 6051 01e1
```

10.86 mdev

cmd: mdev

Description: Select current PHY to be accessed. The default device ID is 0x01. If no parameter is entered, it displays current phy address setting.

Syntax: mdev [<phy_id>]

Example:

```
0:> mdev 1
Phy Address = 1
```

10.87 miimode

cmd: miimode

Description: Select Auto Mode of MII Access. 0:disable, 1:enable

Syntax: miimode <1|0>

Example:

```
0:> miimode 0
Setting MII auto mode to OFF
0:> miimode 1
Setting MII auto mode to ON
0:> miimode
```

10.88 lbertram

Command: lbertram

Description: Load data to PHY BIST RAM

Syntax: lbertram [filename]

Options:

-c<DEC>	channel number (def=0)
-e	enable BIST
-f<string>	File name containing BIST data

10.89 dbertram

Command: dbertram

Description: Dump PHY BIST RAM

Syntax: dbertram

Options:

-b<HEX>	Begin of BIST RAM (def=00000000)
-c<DEC>	channel number (def=0)
-e<HEX>	End of BIST RAM (def=000000FF)
-r	Dump Rx BIST RAM
-t	Dump Tx BIST RAM

10.90 bertstats

Command: bertstats

Description: Dump PHY BIST statistics

Syntax: bertstats

10.91 rm

Command: rm

Description: Read MII Registers

Syntax: rm

10.92 mrloop

Command: mrloop

Description: loop on MII read. This is special test routine for MII read. It loops on MII register read util user abort or if value is zero.

Syntax: mrloop <addr>

10.93 phymse

Command: phymse

Description: PHY mean square error.

Syntax: phymse

Options:

-p Polling continuously at 100ms interval

10.94 initphy

Command: initphy

Description: Initialize phy.

Syntax: initphy

10.95 memsearch

Command: memsearch

Description: Search a Data Pattern in Memory. The default, begin address = 0, and len = 0x20000. The data pattern must be specified.

Syntax: memsearch begin[-end | len] data

10.96 read

cmd: read

Description: Read Memory

Syntax: read [!#*$~^lImSsxX]<begin> [-end | len]

! = Configuration space (32)

S = Configuration space (16)

X = Configuration space (8)

= Registers (32) (default)

* = SRAM (32)

$ = NVRAM (SEEPROM/FLASH) (32)

m = MII registers (16)

~ = VPD Access (32)

I = indirect access of host memory (32)

^ = internal scratchpad (32)

l = direct access of host memory (32)

s = direct access of host memory (16)

x = direct access of host memory (8)

Example:

1. Read from Configuration space

```
0:> read !10
000010: f4000004
```

2. Read from Register

```
0:> read #10
000010: f4000004
```

3. Read from SRAM

```
0:> read *10
000010: 00010001
```

4. Read from internal scratchpad

```
0:> read ^00
000000: 000312ae
```

10.97 write

cmd: write

Description: Write Memory

Syntax: write [!#*$~^lImSsxX]<address> [-end | len] data

! = Configuration space (32)

S = Configuration space (16)

X = Configuration space (8)

= Registers (32) (default)

* = SRAM (32)

$ = NVRAM (SEEPROM/FLASH) (32)

m = MII registers (16)

~ = VPD Access (32)

I = indirect access of host memory (32)

^ = internal scratchpad (32)

l = direct access of host memory (32)

s = direct access of host memory (16)

x = direct access of host memory (8)

Example:

1. Write to configuration space.
   ```
   0:> write !10 f4000004
   ```
2. Write to register.
   ```
   0:> write #10 f4000004
   ```
3. Write to SRAM
   ```
   0:> write *10 10001
   ```
4. Write to internal scratchpad
   ```
   0:> write ^10 f4000004
   ```

10.98 poll

cmd: poll

Description: poll Memory

Syntax: poll [!#*$~^lImSsxX]<addr> [[!#*$~^lImSsxX]<addr>...]

! = Configuration space (32)

S = Configuration space (16)

X = Configuration space (8)

= Registers (32) (default)

* = SRAM (32)

$ = NVRAM (SEEPROM/FLASH) (32)

m = MII registers (16)

~ = VPD Access (32)

I = indirect access of host memory (32)

^ = internal scratchpad (32)

l = direct access of host memory (32)

s = direct access of host memory (16)

x = direct access of host memory (8)

Options:

-n<DEC> Number of changes to print before stop (def=0)

10.99 setbit

cmd: setbit

Description: Read-Modify Memory by ored with <bits>

Syntax: setbit [!#*$~^lImSsxX]<addr> <bit#> [<bit#>] ...

! = Configuration space (32)

S = Configuration space (16)

X = Configuration space (8)

= Registers (32) (default)

* = SRAM (32)

$ = NVRAM (SEEPROM/FLASH) (32)

m = MII registers (16)

~ = VPD Access (32)

I = indirect access of host memory (32)

^ = internal scratchpad (32)

l = direct access of host memory (32)

s = direct access of host memory (16)

x = direct access of host memory (8)

10.100 clearbit

cmd: clearbit

Description: Read-Modify Memory by anded with ~<bits>

Syntax: clearbit [!#*$~^lImSsxX]<addr> <bit#> [<bit#>] ...

! = Configuration space (32)

S = Configuration space (16)

X = Configuration space (8)

= Registers (32) (default)

* = SRAM (32)

$ = NVRAM (SEEPROM/FLASH) (32)

m = MII registers (16)

~ = VPD Access (32)

I = indirect access of host memory (32)

^ = internal scratchpad (32)

l = direct access of host memory (32)

s = direct access of host memory (16)

x = direct access of host memory (8)

10.101 readbit

cmd: readbit

Description: Read the bit specified by <bit#>

Syntax: readbit [!#*$~^lImSsxX]<addr> <bit#>

! = Configuration space (32)

S = Configuration space (16)

X = Configuration space (8)

= Registers (32) (default)

* = SRAM (32)

$ = NVRAM (SEEPROM/FLASH) (32)

m = MII registers (16)

~ = VPD Access (32)

I = indirect access of host memory (32)

^ = internal scratchpad of host memory (32)

l = direct access of host memory (32)

s = direct access of host memory (16)

x = direct access of host memory (8)

10.102 cread

Command: cread

Description: Read PCI configuration Space of specified device. default - 32 bits read, S - 16 bits read, X - 8 bits read

Syntax: cread <bus> <dev> <func> [S|X]<begin> [-end | len]

10.103 cwrite

Command: cwrite

Description: Write PCI configuration Space of specified device. default - 32 bits read, S - 16 bits read, X - 8 bits read

Syntax: cwrite <bus> <dev> <func> [S|X]<begin> [-end | len] data

10.104 vpdtest

cmd: vpdtest

Description: Run VPD Memory Test. Write designed pattern toVPD storage. Then read back and compare with designed pattern.

Syntax: vpdtest

Options:

-d Force destructive test

-n<DEC> iteration

-p<DEC> Pattern to test (def=0)
0 - Increment; 1 - Decrement ;1 - 0's 2 - FF's ; 3 - AA55; 4 - 55AA

-r Random address test

-w Force write test enable

10.105 regtest

cmd: regtest

Description: MAC registers read/write test. Driver must be unloaded.

Syntax: regtest [<iteration>]

Options:

-i Also run indirect memory test

-n<DEC> iteration (The default iteration is 1. 0 means run forever)

-r<DEC> repeat count for each register test (def=1)

-I Do not perform reset before test

10.106 miitest

cmd: miitest

Description: Run MII Memory Test. PHY registers read write test

Syntax: miitest [itereation]

Options:

-n<DEC> iteration (The default iteration is 1. 0 means run forever)

10.107 msi

cmd: msi

Description: Run MSI Test Manually

Syntax: msi

Options:

-c<HEX> message count (2 to powered of c) (def=00000003)

-d	option removed, kept for bcmediag compatibility
-I	initializing MSI block
-o<DEC>	offset (def=0)

10.108 memtest

cmd: memtest

Description: Test memory blocks such as scratch pad, BD sram, DMA sram, Mbuf, external SRAM. Running "diagcfg" can configure memory block ranges. See "diagcfg" for detail. Driver must be unloaded.

Syntax: memtest [iteration]

Options:

-b	Test BD SRAM
-c	Test MBUF special
-d	Test DMA SRAM
-e	Test External Memory
-m	Test MBUF SRAM
-n<DEC>	iteration (The default iteration is 1. 0 means run forever)
-p	Test CPU GPRs
-s	Test Scratch Pad
-x	Test MBUF SRAM via DMA

10.109 setest

cmd: setest

Description: Run NVRAM Test

Syntax: setest [iteration]

Options:

-e	extensive test
-d<HEX>	ending offset (with -e option) (def=FFFFFFFF)

-n<DEC> iteration

-q quiet mode

-r read only test

-s<HEX> start offset (with -e option) (def=00000000)

10.110 bist

cmd: bist

Description: Run BIST. The default iteration is 1. 0 means run forever.

Syntax: bist [iteration]

10.111 nictest

cmd: nictest

Description: Run a set of NIC Tests. NIC test can include memory test, serial eeprom test, interrupt test, packet exchange, MAC registers test, Mii registers test, cpu test, dma test. This test can to be configured by running "diagcfg". See "diagcfg" for details. If a "test list" is not entered below then a set of default tests are run.

Syntax: nictest [test list]

abcd -- runs all tests

b -- runs all test in group B

a3 b1 -- runs test a3 and b1 only

a124b2 -- runs test a1,a2,a4 and b2

Options:

-e run NVRAM verification also

-n<DEC> iteration

10.112 intrtest

cmd: intrtest

Description: Interrupt Test

Syntax: intrtest [iteration]

Options:

-n<DEC> iteration (The default iteration is 1. 0 means run forever.)

10.113 pkttest

Command: pkttest

Description: Perform MAC and/or PHY loopback test. This test will send 100 packets in incremental length and check for contents of loopbacked packets.

Syntax: pkttest [<iteration>]

Options:

-e run external loopback test

-m run mac loopback test

-n<DEC> iteration (The default iteration is 1. 0 means run forever.)

-p run phy loopback test

10.114 cputest

cmd: cputest

Description: TX / RX CPU Test. This test needs an input CPU file in the same location as b57diag.exe. The default file name is cpu.bin or cpu05.bin unless specified by –f option.

Syntax: cputest [iteration]

Options:

-f<string> input filename

-n<DEC> iteration (The default iteration is 1. 0 means run forever)

10.115 dmatest

cmd: dmatest

Description: DMA Test

Syntax: dmatest [iteration]

Options:

-4 Allocate 4k-aligned buffers

-a<HEX> NIC address (def=00002100)

-d Display DMA info.

-f Force to use 32-bit bus

-l<HEX> Length of DATA to do DMA (def=00000400)

-n<DEC> iteration

-o<HEX> Buffer offset (def=00000000)

10.116 teste

Command: teste

Description: The command enables tests. It effects nictest, regtest, pkttest, and memtest commands. The test must starts with test group alpha (a-d). If no number is entered, all tests in that group are enabled.

Syntax: teste [<tests> [<tests>…]]

Example: **teste a12bc** -- Enable test a1, a2, all tests in group b and c
teste ab cd -- Enables all tests
teste -- Display enabled tests

10.117 testd

Command: testd

Description: The command disables tests. It effects nictest, regtest, pkttest, and memtest commands. The test must starts with test group alpha (a-d). If no number is entered, all tests in that group are disabled.

Syntax: testd [<tests> [<tests>…]]

Example: **testd a12bc** -- Disable test a1, a2, and all tests in group b and c.
testd ab cd -- Disables all tests.
testd -- Display disabled tests.

10.118 asftest

cmd: asftest

Description: ASF Test

Syntax: asftest

Options:

-n<DEC> iteration

10.119 bustest

Command: bustest

Description: PCI Bus Test

Syntax: bustest

Options:

-a<HEX> NIC address to DMA data to. (def=00002100)

-d<HEX> delay poll dma done polling (def=00000000)

-e<DEC> End of test case (def=259)

-g Insert debugging information

-h<DEC> Maxmum length (def=1024)

-i<DEC> Number of transactions per pattern (def=10)

-l<DEC> Minimum length (def=256)

-n<DEC> iteration

-o<DEC> Number of consecutive patterns (def=1)

-p<DEC> DMA priority (def=0)

-s<DEC> Start of test case (def=0)

-t<DEC> Transient fixed pattern (def=0)

-v<DEC> Verbose level (0..2) (def=1)

-L Loop

There are total 260 test cases (258 unique tests cases) which are described as follows:

```
Test case#                  Pattern
==========      ================================
   0            ffffffff ffffffff 00000000 00000000
```

```
1            ffffffff fffffffe 00000000 00000000
2            ffffffff fffffffd 00000000 00000000
.                    .
.                    .
.                    .
64           7fffffff ffffffff 00000000 00000000
65           00000000 00000000 ffffffff ffffffff
66           00000000 00000000 ffffffff fffffffe
67           00000000 00000000 ffffffff fffffffd
 .                   .
 .                   .
 .                   .
129          00000000 00000000 7fffffff ffffffff
130          00000000 00000000 ffffffff ffffffff (repeat)
131          00000000 00000001 ffffffff ffffffff
132          00000000 00000002 ffffffff ffffffff
 .                   .
 .                   .
 .                   .
194          80000000 00000000 ffffffff ffffffff
195          ffffffff ffffffff 00000000 00000000 (repeat)
196          ffffffff ffffffff 00000000 00000001
197          ffffffff ffffffff 00000000 00000002
 .                   .
 .                   .
 .                   .
259          ffffffff ffffffff 80000000 00000000
```

If you run bustest command without any parameters, it will perform DMA testing on all 260 patterns with 10 iterations per pattern and different data length in each iteration. First eight bytes of data are used to store the following info for debug:

```
byte 0-4 : length
byte 5-6 : iteration#
byte 6-7 : test case#
```

10.120 sramtest

cmd: sramtest

Description: SRAM Test

Syntax: sramtest <begin> [<len> |<-end>]

10.121 msitest

cmd: msitest

Description: MSI Test

Syntax: msitest

Options:

-c<HEX> message count (2 to powered of c) (def=00000003)

-I initializing MSI block

-n<DEC> iteration

10.122 romtest

cmd: romtest

Description: ROM Test

Syntax: romtest

Options:

-n<DEC> iteration

10.123 gpiotest

cmd: gpiotest

Description: do GPIO test

Syntax: gpiotest

Options:

-n<DEC> iteration

10.124 cpudiag

cmd: cpudiag

Description: run diagnostic from internal CPU

Syntax: cpudiag

Options:

-b	Test BD SRAM (0x0000-0x0fff and 0x4000-0x7fff)
-d	Test DMA SRAM (0x2000-0x3fff)
-m	Test MBUF SRAM (0x8000-0x00000005)
-n<DEC>	Iteration
-r	Register Test
-T	Test with Tx CPU
-R	Test with Rx CPU

10.125 pcicfgtest

cmd: pcicfgtest

Description: Run PCI Config. Reg. Test

Syntax: pcicfgtest

Options:

-I	Do not perform reset before test
-r<DEC>	repeat count for each register test (def=1)
-n<DEC>	iteration

10.126 petest

cmd: petest

Description: Perform parity error test on a bridge

Syntax: petest <bridge>

10.127 errctrl

cmd: errctrl

Description: Configure Error Control Setting

Syntax: errctrl [w|c|a|l|s]

```
w  - Wait on Error
     Program will pause and wait for user's action (eng. default)
c  - Continue on Error
     Program will continue even if the error is detected
a  - Abort on Error (Manufacturing default)
```

```
     Program stops
l  - Loop on Error
     Program will retry the same test
s  - Skip on Error
     Program will skip the rest of the present test
```

10.128 sedvt

cmd: sedvt

Description: Perform NVRAM dvt test. When 'init' subcommand is entered, the NVRAM is initialized into pseudo random pattern. The original content is DESTROYED.

Syntax: sedvt [init]

Options:

-a	Access test
-e	Erase with reset
-f	force
-l<HEX>	size (def=00000100)
-n<DEC>	iteration (def=0)
-p	pause
-r	Read Test with reset
-s	skip checking entire NVRAM
-w	Read/Write Test with reset

10.129 miimisctest

cmd: miimisctest

Description: Run MII Misc. Tests.

Syntax: miimisctest

Options:

-n<DEC>	iteration

10.130 cpugprtest

cmd: cpugprtest

Description: Run CPU GPR test.

Syntax: cpugprtest

Options:

-r	run rx_cpu only
-t	run tx cpu only
-u	run Address Up

10.131 dmashasta

cmd: dmashasta

Description: DMA Test

Syntax: dmashasta

Options:

-r	Disable the read DMA test
-w	Disable the write DMA test
-e	Disable the chip reset execution before each DMA test
-l<HEX>	Number of BD sot DMA on read (0x1-0x79) (def=0xA)

10.132 binchksum

cmd: binchksum

Description: Verify the checksum of each piece of firmware in the input file that contains a complete NVRAM image.

Syntax: binchksum –f<filename>

10.133 pmdcfg

cmd: pmdcfg

Description: Display Power Management Info

Syntax: pmdcfg

Options:

-a<HEX> 0 to add a pattern; otherwise delete (def=00000000)

-l<HEX> length (def=00000000)

-p<HEX> pattern. 0 - Increment; 1 - Increment (def=00000000)

10.134 pmpd

cmd: pmpd

Description: Power Down MAC. Input file wol.txt should be found in the same location of b57diag.exe. The input file contains patterns. If the file name is not specified, data zero will be used.

Syntax: pmpd [filename]

Options:

-a<HEX> 1 enables ACPI Packet Match (def=00000000)

-c<HEX> 0 to add a pattern; otherwise delete (def=00000000)

-f<string> File name which contains patterns

-m<HEX> 1 enables Magic MAC detection (def=00000000)

-o<HEX> offset (def=00000000)

-v<HEX> Versbose level (default=0) (def=00000000)

10.135 intr

cmd: intr

Description: Dump Interrupt Info

Syntax: intr

Example:

```
0:> intr
Interrupt Count      : 48337
IPC MASK             : 0xb8 0x0c
IPC IS1 IS2          : 0x00 0x00
IPC IRR1 IRR2        : 0x18 0x00
IPC ILCR1 ILCR2      : 0x20 0x0e
Worst Intr. Latency  : 54476 CPU clocks/50 uS
```

10.136 intrctrl

cmd: intrctrl

Description: Control Interrupt Controller

Syntax: intrctrl u|m

u : unmask current interrupt
m : mask current interrupt

Example:
1. Mask current interrupt
```
0:irq> intrctrl m
Masking Interrupt 10
```
2. Unmask current interrupt
```
0:irq> intrctrl u
Unmasking Interrupt 10
```

10.137 intt

cmd: intt

Description: Interrupt Tracer. This is special function to monitor interrupt functions.

Syntax: intt

10.138 mbuf

cmd: mbuf

Description: Dump Content of MBUFs. The display command must be specified by -c option or 'chain', 'info', 'cluster', 'hdr', and 'ckhdr.

Syntax: mbuf [chain|info|cluster|hdr|ckhdr]

Options:

-c<HEX> command

0 - displays a MBUF
1 - displays a MBUF chain
2 - displays general MBUF information
3 - displays MBUF Cluster
4 - Check MBUF header corruption
5 - Dump all MBUF headers

-m<HEX> display mode, 0: decode, 1: in hex (def=00000000)

-n<DEC> MBUF number to display/decode (def=256)

-w MBUF workaround

Example:

1. Display MBUF chain.

```
0:> mbuf chain
->143->144->145->146->147->148->149->14a->14b->14c->14d->14e->14f->150
->151->152->153->154->155->156->157->158->159->15a->15b->15c->15d->15e
->15f->160->161->162->163->164->165->166->167->168->169->16a->16b->16c
->16d->16e->16f->170->171->172->173->174->175->176->177->178->179->17a
```

10.139 loaddrv

cmd: loaddrv

Description: Load Driver

Syntax: loaddrv

Options:

-4<HEX>	Enable 4k-aligned memory (def=00000000)
-o<HEX>	Allocate memory with specified offset (def=00000000)
-j	Allocate memory for Jumbo packet
-t	Allocate memory for TCP Segmentation
-f	Force Link to Max Speed

Example:

```
0:> loaddrv
Reinitializing PCI Configuration Space
Bus Number       : 1
Device/Funtion   : 11/0
Base Address     : 0xfb010000
IRQ              : 9
Bringing up MAC driver ... OK
PHY calculated ID: 60008162
BCM5702/03 Internal Phy Rev#2
Configuring BCM54xx ... Done
Determining Link Speed ... 1000Base-T Full Duplex
```

10.140 unloaddrv

cmd: unloaddrv

Description: Unload NIC driver

Syntax: unloaddrv

Example:

```
0:> unloaddrv

Unloading MAC driver ... OK
```

10.141 machalt

cmd: machalt

Description: Halt MAC controller

Syntax: machalt

Example:

```
0:> machalt
Halting MAC … OK
```

10.142 ftq

cmd: ftq

Description: Dump FTQ

Syntax: ftq

Example:

```
0:> ftq

***** Dump FTQ Peak/Write (Control,Full Counter, Write/Peak) *****
DMA Read FTQ (1)          : 00000000 00000000 20000000
DMA High Read FTQ (2)     : 00000000 00000000 60002160
DMA Write FTQ (6)         : 00000000 00000000 20000000
DMA High Write FTQ (7)    : 00000000 00000000 20000000
DMA Complete Dx FTQ (3)   : 00000000 00000000 20000000
Send BD Comp. FTQ (4)     : 00000000 00000000 20000000
Send Data Init FTQ (5)    : 00000000 00000000 20000000
Send Data Comp. FTQ (9)   : 00000000 00000000 20000000
Rx BD Complete FTQ (13)   : 00000000 00000000 60002160
Rx Data Complete FTQ (16) : 00000000 00000000 20000000
S/W Type 1 FTQ (8)        : 00000000 00000000 20000000
Host Coalescing FTQ (10)  : 00000000 00000000 2000:00000000
MAC TX FTQ (11)           : 00000000 00000000 2000:00000000
Mbuf Cluster Free FTQ (12): 00000000 00000000 2000:00000000
RX List Placement FTQ (14): 00000000 00000000 2000:00000000
RX Data Initiator FTQ (15): 00000000 00000000 2000:00000000

S/W Type 2 FTQ (17)       : 00000000 00000000 2000:00000000
```

10.143 addmc

cmd: addmc

Description: Add Multicast MAC

Syntax: addmc <xx:xx:xx:xx:xx:xx>

Example:

```
0:> addmc FF:FF:00:0A:00:00
```

10.144 delmc

cmd: delmc

Description: Delete Multicast MAC

Syntax: delmc <xx:xx:xx:xx:xx:xx>

Example:

```
0:> delmc FF:FF:00:0A:00:00
```

10.145 txmacdes

cmd: txmacdes

Description: Program Destination address to UUT

Syntax: txmacdes <xx:xx:xx:xx:xx:xx>

10.146 txmacsrc

cmd: txmacsrc

Description: Program Source address to UUT

Syntax: txmacsrc <xx:xx:xx:xx:xx:xx>

10.147 chklddrv

cmd: chklddrv

Description: Check to see if driver is loaded. Returns 1 if driver is loaded, returns 0 otherwise.

Syntax: chklddrv

10.148 vlantag

cmd: vlantag

Description: Display/Clear vlanTag information.

Syntax: vlantag

Options:

-c	clear vlanTag info

10.149 reg

cmd: reg

Description: register wizard. This command allows user to view edit registers.

Syntax: reg [pci|mii] [offset]

10.150 exit

cmd: exit

Description: Exit System

Syntax: exit

10.151 debug

cmd: debug

Description: Display debugs information

Syntax: debug <n>

1: Dump TX / RX Stats

2: Dump Clock Scale info

3: Clear worst interrupt latency

4: Toggle indirect access flag

5: Toggle PCI-X workaround

Example:

1. Display debug information.

```
0:> debug 1
Tx Packets Enqueued      :           0
Tx Packet Complete       :           0
Tx Packet Complete Error :           0
Rx Packets               :           0
Rx Unknown Packets       :           0
Rx Bad Packets           :           0
Rx Good Packets          :           0
```

10.152 gpiowrite

cmd: gpiowrite

Description: Write a Value into GPIO pin

Syntax: gpiowrite <GPIO_num> < value>

Valid value for <GPIO_num> is 0-3, <value> is 0 or 1.

Example:

1. Write 1 to GPIO#1 Pin

```
0:> gpiowrite 1 1

Writing 1 to GPIO#1
```

10.153 gpioread

cmd: gpioread

Description: Read GPIO Value

Syntax: gpioread

Example:

1. Read GPIO Pins

```
0:> gpioread
GPIO#0 : 1
GPIO#1 : 1
GPIO#2 : 0
GPIO#3 : 0
```

10.154 pxecpy

cmd: pxecpy

Description: Load PXE Code to MBUF Memory. The file name must be specified in the parameter.

Syntax: pxecpy <file>

Options:

-f<string> filename

10.155 device

cmd: device

Description: Show or Switch Device. If no parameter is entered, it will display all device available.

Syntax: device <dev>

Options:

-n<HEX>	Device Number (def=00000000)
-r	Remove all current devices and re-scan available devices
-s	Silent mode - do not display devices

10.156 version

cmd: version

Description: Display Program Version

Syntax: version

10.157 help

cmd: help

Description: Enter command group for the list of available commands. If no parameter is entered, all commands are displayed. Example: help vpd. For each command help, type the command and then '?'. Example: memtest ?

Syntax: help [vpd|nvram|cpu|dma|packet|mii|mem|test|power|irq|mac|misc]

10.158 ?

cmd: ?

Description: Alternate Help Command. This is same command as 'help' command.

Syntax: ? [vpd|nvram|cpu|dma|packet|mii|mem|test|power|irq|mac|misc]

10.159 radix

cmd: radix

Description: Change System Radix. Radix must be 2-16. Radix used for number entry. 16 means enter number in hex, and 10 means in decimal.

Syntax: radix <2 | 8 | 10 | 16>

10.160 nolog

cmd: nolog

Description: Close the Current Logfile

Syntax: nolog

10.161 log

cmd: log

Description: Save all output to log file

Syntax: log

Options:

-f<string> filename (for bcmediag compatibility only)

-a Append to existing file

10.162 pciinit

cmd: pciinit

Description: Initialize PCI configuration registers

Syntax: pciinit

10.163 pciscan

cmd: pciscan

Description: Scan for all PCI Devices

Syntax: pciscan

Example:

```
0:> pciscan
Scanning PCI devices ...
Bus Dev Func  Vendor ID Device ID    Class     Base/IO Address    IRQ
=== === ====  ========= =========  ==========  =================  ===
       0   0   0       8086      7190     06:00:00   00000000:F8000008  0
       0   1   0       8086      7191     06:04:00   00000000:00000000  0
       0   7   0       8086      7110     06:01:00   00000000:00000000  0
       0   7   1       8086      7111     01:01:80   00000000:00000000  0
       0   7   2       8086      7112     0C:03:00   00000000:00000000  9
       0   7   3       8086      7113     06:80:00   00000000:00000000  0
       0  14   0       12AE      0003     02:00:00   00000000:F4000004  10
       1   0   0       1002      4742     03:00:00   00009001:F5000000  11
```

10.164 dos

cmd: dos

Description: Execute DOS command. If no parameter is entered, DOS shell is entered. This command is not supported by EFI.

Syntax: dos <dos command>

10.165 diagcfg

cmd: diagcfg

Description: Configure diagnostics parameter for Memory tests and Manufacturing test (NIC test).

Syntax: diagcfg

Example:

```
0:misc> diagcfg


Diagnostics Configuration Menu

 1. Memory Test Configuration Menu
 2. Test Configuration Menu
 3. Driver Configuration Menu
 4. Abort On Failure is enabled
 5. Save Configuration

Enter your choice or ESC to exit -> 1

                  Memory Test Configuration Menu

 1. SRAM BD1 Start (0x00000000-0x00000fff)    : 00000000
 2. SRAM BD1 End  (0x00000000-0x00000fff)     : 00000fff
 3. SRAM BD2 Start (0x00004000-0x00007fff)    : 00004000
 4. SRAM BD2 End (0x00004000-0x00007fff)      : 00007fff
 5. SRAM DMA Start (0x00002000-0x00003fff)    : 00002000
 6. SRAM DMA End (0x00002000-0x00003fff)      : 00003fff
 7. SRAM MBUF Start (0x00008000-0x00015fff)   : 00008000
 8. SRAM MBUF End (0x00008000-0x00015fff)     : 00000000
 9. SRAM SPAD Start (0x00030000-0x00037fff)   : 00030000
10. SRAM SPAD End (0x00030000-0x00037fff)     : 00037fff
11. Ext. SRAM Start (0x00020000-0x00ffffff)   : 00020000
12. Ext. SRAM End (0x00020000-0x00ffffff)     : 00ffffff
13. MBUF Bank (1 - Odd ; 2 - Even ; 3 - Both) : 3
 0. Exit to previous menu

Enter your choice (option=paramter) -> 0


Diagnostics Configuration Menu

 1. Memory Test Configuration Menu
 2. Test Configuration Menu
 3. Driver Configuration Menu
 4. Abort On Failure is enabled
 5. Save Configuration
```

```
Enter your choice or ESC to exit -> 2

Test Configuration Menu

A1. Indirect Register.................: Enabled
A2. Control Register..................: Enabled
A3. Interrupt.........................: Enabled
A4. Built In Self.....................: Enabled
A5. PCI Cfg Register..................: Enabled
B1. Scratch Pad.......................: Enabled
B2. BD SRAM...........................: Enabled
B3. DMA SRAM..........................: Enabled
B4. MBUF SRAM.........................: Enabled
B5. MBUF SRAM via DMA.................: Enabled
B6. External SRAM.....................: Disabled
B7. CPU GPR...........................: Enabled
C1. NVRAM.............................: Enabled
C2. CPU...............................: Enabled
C3. DMA...............................: Enabled
C4. MII...............................: Enabled
C5. VPD...............................: Enabled
C6. ASF Miscellaneous.................: Enabled
C7. Expansion ROM.....................: Enabled
D1. MAC Loopback......................: Enabled
D2. PHY Loopback......................: Enabled
D3. External Loopback.................: Disabled
D5. MII Miscellaneous.................: Enabled
D6. MSI...............................: Enabled

Enter test number to toggle or ESC to exit ->

Diagnostics Configuration Menu

 1. Memory Test Configuration Menu
 2. Test Configuration Menu
 3. Driver Configuration Menu
 4. Abort On Failure is enabled
 5. Save Configuration

Enter your choice or ESC to exit -> 3

                  Driver Configuration Menu

 1. Rx Coalescing Ticks                      : 1000
 2. Rx Coalescing Ticks During Intr          : 0
 3. Rx Coalescing Frames                     : 1
 4. Rx Coalescing Frames During Intr         : 0
 5. Tx Coalescing Ticks                      : 1000
 6. Tx Coalescing Ticks During Intr          : 0
 7. Tx Coalescing Frames                     : 1
 8. Tx Coalescing Frames During Intr         : 0
 9. Statistics Coalescing Ticks              : 1000000
10. Tx Packet Descriptor Count               : 50
11. Rx Standard Packet Count                 : 100
12. Rx Jumbo Packet Count                    : 50
13. Enable Mini Ring  {Yes(1),No(0)}         : 1
14. Mini Ring Packet Size (64-512)           : 64
15. External Memory Exists {Yes(1), No(0)}   : 0
16. MBUF Base                                : 0x008000
17. MBUF Length                              : 0x018000
18. Tx Flow Control { Enable(1),Disable(2) } : Disable
19. Rx Flow Control { Enable(1),Disable(2) } : Disable
20. Auto Link Speed { Enable(1),Disable(2) } : Enable
```

```
21. Send Ring Size { 32, 64, 128, 256, 512 } : 512
22. Rx Ring Size { 32, 64, 128, 256, 512 }   : 512
 0. Exit to previous menu

Enter your choice (option=paramter) -> 0



Diagnostics Configuration Menu

 1. Memory Test Configuration Menu
 2. Test Configuration Menu
 3. Driver Configuration Menu
 4. Abort On Failure is enabled
 5. Save Configuration

Enter your choice or ESC to exit ->
```

10.166 reset

cmd: reset

Description: Reset Chip

Syntax: reset

Options:

-c	Simulate cold reset
-t	Display time from reset to firmware invert signature
-w	Wait for firmware signature

10.167 quit

cmd: quit

Description: Exit System

Syntax: quit

10.168 smbus

cmd: smbus

Description: ASF terminal. Run this command to access SMBus, the parameter a1 and a2 are one byte value to specify the NIC SMBus Addresses. It sets to 0 by default.

Syntax: smbus [a1 a2]

Options:

-s Run in slave mode

10.169 cls

cmd: cls

Description: Clear Screen.

Syntax: cls

10.170 loop

cmd: loop

Description: loop on command.

Syntax: loop [iteration] <cmd> [<parameter> ...]

10.171 dbmode

cmd: dbmode

Description: Set DEBUG Mode to On or Off Mode.

Syntax: dbmode on|off

10.172 asf

cmd: asf

Description: run asf monitor program with option to Load asf firmware image. This routine loads firmware images into CPU memory and execute the RXCPU. The default files names are asfinit.bin, asfcpua.bin, and asfcpub.bin, which can be over written by parameters.

Syntax: asf [init_img [rx_img [tx_img]]]

Options:

-l Load firmware only

-m Enter asf mode only

-w Simulate warm boot

10.173 new

cmd: new

Description: Display new command available. The default parameter for [n] is 10

Syntax: new [n]

10.174 asfprg

cmd: asfprg

Description: Program asf firmware into NVRAM. The default files names are asfinit.bin, asfcpua.bin, and asfcpub.bin, which can be over written by parameters.

Syntax: asfprg [init_img [rx_img [tx_img]]]

Options:

-v<HEX> verbose level (0,1,2) (def=00000001)

10.175 sleep

cmd: sleep

Description: suspense process for Excute command from a file

Syntax: sleep [miliseconds]

10.176 fillpattern

cmd: fillpattern

Description: Fill WOL matching pattern into Misc. Memory Loacation.

Syntax: fillpattern [filename]

Options:

-e<HEX> (end address + 1) of the first block (def=00020000)

-f<string> filename which contains data pattern

-o<HEX> sram first block offset to be loaded (def=00000000)

-s<HEX> sram second block offset to be loaded (def=00000000)

10.177 inp

cmd: inp

Description: input port (not supported for EFI)

Syntax: inp <addr>

Options:

-l	long word size
-w	word size

10.178 outp

cmd: outp

Description: input port (not supported for EFI)

Syntax: outp <addr> <value>

Options:

-l	long word size
-w	word size

10.179 switch

cmd: switch

Description: Alternate 'device' command. If no parameter is entered, it will display all device available.

Syntax: switch <dev>

Options:

-n<HEX>	Device Number (def=00000000)
-r	Remove all current devices and re-scan available devices
-s	Silent mode - do not display devices

10.180 do

cmd: do

Description: Excute commands from a file.

Syntax: do <filename> [with <parameter1>, ...]

Options:

-c	continue on error
-e	echo command
-p<DEC>	pause between each command. If a value is entered, it delays for # of ms (def=0)

10.181 txfill

cmd: txfill

Description: Fill tx buffer with pattern and packet length (14-9018).

Syntax: txfill [-f=]<file> [-x=]<load length> [-p=]<pattern> [-l=]<packet length>

Options:

-f<string>	filename
-l<DEC>	packet length in bytes (14-9018) (def=1514)
-p<DEC>	pattern selection (0-8) (def=0)
-x<DEC>	length to load in bytes (default to EOF)

Pattern:
0. Use buffer as is
1. Increment data
2. Random
3. all 0
4. all FF
5. AA55
6. 55AA
7. IP_Iden-Inc
8. Load from file
9. 8 bytes of 0 and f
10. 16 bytes of 0 and f
11. 32 bytes of 0 and f
12. 64 bytes of 0 and f

10.182 wbuf

cmd: wbuf

Description: Write tx|rx buffer with specified data at offset. Only works with static buffer selection –A.

Syntax: wbuf tx|rx <offset> <data>

10.183 rbuf

cmd: rbuf

Description: Read tx|rx|bistin|bistout|bistex buffer. Read tx|rx|bistin|bistout|bistex buffer with specified at offset with a specified length. Only works with static buffer selection -A.

Syntax: rbuf tx|rx|bistin|bistout|bistex <offset> <len>

10.184 cpbuf

cmd: cpbuf

Description: Copy the content of rx buffer into tx buffer. Only works with static buffer selection –A.

Syntax: cpbuf <offset> <length>

10.185 echo

cmd: echo

Description: echo <string> to screen.

Syntax: echo <string>

10.186 pause

cmd: pause

Description: Pause for user to hit a key. If no parameter is entered, 'press any key to continue...' will be displayed

Syntax: pause < message>

10.187 q

cmd: q

Description: Exit System

Syntax: q

10.188 verbose

cmd: verbose

Description: change verbose setting

Syntax: verbose

Options:

-c	toggles CONSOLE
-e	toggles ERROR
-i	toggles IO
-d	toggles DEBUG
-p	toggles PRINTER
-w	toggles WARNING
-r	toggles Interrupt Verbose

10.189 beep

cmd: beep

Description: Create a beep sound. The default to beep once. If parameter 'n' is entered, it beeps n times

Syntax: beep [<n> | on | off]

10.190 var

cmd: var

Description: Display current variables

Syntax: var

10.191 meminfo

cmd: meminfo

Description: report the memory infomation

Syntax: meminfo

10.192 delvar

cmd: delvar

Description: Delete local variables

Syntax: delvar

10.193 regdump

cmd: regdump

Description: Dump register content to a file

Syntax: regdump

Options:

-c	PCI Config Reg.
-f<string>	filename
-m	MII Registers
-r<DEC>	Mac Registers (def=1)

10.194 regcomp

cmd: regcomp

Description: Compare register content to a file. his command may be used together with regdump to find out any register got changed.

Syntax: regcomp <filename>

Options:

-c	PCI Config Reg.
-f<string>	filename
-m	MII Registers
-r<DEC>	Mac Registers (def=1)

10.195 regrestore

cmd: regrestore

Description: Restore register content from a file. This command may be used together with regdump to restore register got changed.

Syntax: regrestore <filename>

Options:

-c PCI Config Reg.

-f<string> filename

-m MII Registers

-r<DEC> Mac Registers (def=1)

10.196 nvsize

cmd: nvsize

Description: Programs the NVRAM and TPM size in Kbyte to NVRAM. If [NVRAM] & [TPM] options are entered, they are programmed to NVRAM. If [NVRAM] & [TPM] options are NOT entered, calculated values are programmed. Use a zero value for [NVRAM] & [TPM] to erase the programmed values.

Syntax: nvsize [NVRAM] [TPM]

Options:

-d Display Present Size Programmed Into NVRAM

-D Specify [NVRAM] & [TPM] size in decimal (dflt. hex)

10.197 aspm

cmd: aspm

Description: Configure the PCI-E Link power state operation at the root complex and the device under test. Power state option described below.
0 ASPM disable
s ASPM L0s enabled
1 ASPM L1 enabled
a ASPM L0s and L1 enabled

Syntax: aspm [-e 0|s|1|a] [-r 0|s|1|a] [-x 0|1] [-d] [-i]

Options:

-r<string> Configure root complex device

-e<string> Configure endpoint (Broadcom) device (dut)

-x<DEC> Enable ExtendedSync mode for root complex and endpoint (def=0)

-d Display present ASPM State

-i Ignore all previous ASPM setting after a chip reset

10.198 dids

cmd: dids

Description: The feature outputs the following information: PCI DID, VID, SDID & SVID; MAC address, Firmware revision, PXE, PXESpd, WOL, ASF, MBA, Bond Rev. This information can be used to verify the setup of a chip after a firmware upgrade.

Syntax: dids

10.199 serial

cmd: serial

Description: Compares the serial number to defaults or the provided values. This PCI capability testing is only applicable to Shasta C stepping (i.e. BCM5752Cx) family.

Syntax: serial <dwordLo> <dwordHi>

10.200 power

cmd: power

Description: Verify the power function of PCI capability. This PCI capability testing is only applicable to Shasta C stepping (i.e. BCM5752Cx) family.

Syntax: power

10.201 readbr

cmd: readbr

Description: Read bridge's configuration space.

Syntax: readbr

10.202 writebr

cmd: writebr

Description: Write bridge's configuration space.

Syntax: writebr

10.203 findbridge

cmd: findbridge

Description: Find all bridges in the system.

Syntax: findbridge

10.204 bridge

cmd: bridge

Description: Switch to specified bridge.

Syntax: bridge

10.205 pere

cmd: pere

Description: Enable parity error response on a bridge. Defaults to current bridge.

Syntax: pere <bridge>

10.206 perd

cmd: perd

Description: Disable parity error response on a bridge. Defaults to current bridge.

Syntax: perd <bridge>

10.207 peclr

cmd: peclr

Description: Clear parity error on bridge. Defaults to current bridge.

Syntax: peclr <bridge>

10.208 pechk

cmd: pechk

Description: Check parity error on bridge. Defaults to current bridge.

Syntax: pechk <bridge>

10.209 iscsiprg

cmd: iscsiprg

Description: Program ISCSI firmware into NVRAM. This command reads ISCSI code from a file and program into NVRAM. There are 2 types of ISCSI firmware image. One only contains ISCSI Boot Firmware. The other also contains ISCSI CFG Block and ISCSI CFG Program. ISCSI Boot Firmware will be programmed by default. ISCSI CFG Block will be programmed if either there is no ISCSI CFG Block present in NVRAM or "-c" option has been entered. ISCSI CFG Program will be programmed only when "-p" option has been entered.

Syntax: iscsiprg [-f<filename>] [-c] [-p]

Options:

-f<filename> ISCSI firmware file name.

-c Forced to program ISCSI CFG FW

-p Forced to program ISCSI CFG Program.

10.210 umpecho

cmd: umpecho

Description: Enable/Disable UMP Echo Test function in UMP Firmware. It requires either ump14a.bin/ump14b.bin test firmware or UMP Firmware. Options that will work with test firmware are '-o', '-c', '-i' and '-a'. Options that will work with UMP firmware are '-e' and '-d'.

Syntax: umpecho [-o | -c | -i | -a] | [-e] | [-d]

Options:

-o Running UMP Echo Test with test firmware

-c Debug display of SRAM address 0xC00

-i Debug display of CPU code loading

-a Debug prompt after CPU code loading

-e Enable New UMP Echo Test in UMP Firmware

-d Disable New UMP Echo Test in UMP Firmware

10.211 umpcfg

cmd: umpcfg

Description: Configure UMP in NVRAM

Syntax: umpcfg

1	**UMP Settings**	
Description: Provides the sub menu with the options described below.		
	0	Return to previous menu.
	1	Enable/Disable SetLink
	2	Enable/Disable RDIStallTimer
	3	Set RDIStallTimerValue
	4	DisableHostHashTable
	5	Enable/Disable HostEchoControl
	6	Enable/Disable Exceed_375ma_rule
	7	Link Speed
		0 : Return to previous menu 1 : Speed 10/100 (default) 2 : Speed ALL 3 : Speed 10 4 : Speed 100 5 : Speed 1000 6 : Duplex 7 : Auto/Force Mode 8 : Pause Capability

2	Save and Exit
Description: Saves the modified UMP Configuration Table to the network adapter's non-volatile memory and exists.	

3	Exit without Saving
Description: Exits without saving any changes to the UMP Configuration Table.	

10.212 setump

cmd: setump

Description: Enable/Disable UMP

Syntax: setump

Options:

-d Disable UMP

-e Enable UMP

10.213 secfgsb1

cmd: secfgsb1

Description: Configure Selfboot NVRAM Group 1

Syntax: secfgsb1

Options:

-m Mac address xx:xx:xx:xx:xx:xx

-v Vendor ID

-z Vendor Device ID

-s SubSystem Vendor ID

-i SubSystem Device ID

-w Magic Packet WOL 1: Enable 2: Disable

-o Limit WOL Speed to 10 0: No 1: Yes

-l Design Type 0: NIC 1: LOM

-p Enable Phy Auto Power Down 0: No 1: Yes

-r Reversed Nway 0: No 1: Yes

-A Disable Power Saving 0: No 1: Yes

-B Led Mode 0: Mac 1:Phy1 2:Phy2 3:S Traffic 4:Shasta Mac 5:Wireless Combo

-C PCI Power Consumption/Dissipate 1:Default 2:Custom define

-c PCI Power Consumption/Dissipate Value D0:D3/D0:D3

-G Cable Sense 0: No 1: Yes

10.214 secfgsb2

cmd: secfgsb2

Description: Configure Selfboot NVRAM Group 2

Syntax: secfgsb2

Options:

-D PCIE Pwr Consumption/Dissipate 1: Default 2: Custom define

-d PCIE Pwr Consumption/Dissipate Data;

Data: Pwr Rail: Type: State: Base Power

Select Data = 0-7

Pwr Rail = 0:12V; 1: 3.3V; 2: 1.8V; 7: Thermal; 99: Invalidate

Type = 0: PME 1: Aux 2: Idle 3: Sustained 7: Max

Pwr Mgt St = 0: D0 1: D1 2: D2 3: D3

Base Power = X in 0.1 Watt

10.215 secfgsb3

cmd: secfgsb3

Description: Configure Selfboot NVRAM Group 3

Syntax: secfgsb3

Options:

-E Product Name 1: Default 2: Custom define

10.216 secfghwsb1

cmd: secfghwsb1

Description: Configure Hardware Selfboot NVRAM Group 1

Syntax: secfghwsb1

Options:

-m Mac address xx:xx:xx:xx:xx:xx

-z Vendor Device ID

-s SubSystem Vendor ID

-i SubSystem Device ID

-w WOL

-o Limit WOL Speed to 10 0: No 1: Yes

-a Wol Auto 0:Dis 1: Magic 2: Interest 3: Magic & Interest

-B Led Mode 0: Mac 1:Phy1 2:Phy2 3:S Traffic

-G Super Airplane Mode 0: No 1: Yes

10.217 secfghwsb2

cmd: secfghwsb2

Description: Configure Hardware Selfboot NVRAM Group 2

Syntax: secfghwsb2

Options:

-e Engineering Change

-s Serial Number

-m Manufacturing ID

-v Rd VPD Vendor Data V0

10.218 secfghwsb3

cmd: secfghwsb2

Description: Configure Hardware Selfboot NVRAM Group 2

Syntax: secfghwsb2

Options:

-h Hide MBA Setup Prompt 0: Dis 1: En

-k MBA Setup Hot Key 0: Ctrl-S 1: Ctrl-B

-m MBA Boot Protocol 0: PXE 1: RPL 2: BOOTP 3: iSCSI

-v Rd VPD Vendor Data V0

-b MBA Bootstrap Type 0: Auto 1: BBS 2: Int18 3: Int19

-t MBA Delay Time 0-15

-e VLan 0: Dis 1:En

-i VLAN ID

-s MBA Link Speed 0: Auto 1: 10HD 2: 10FD 3: 100HD 4: 100FD

11 ERROR MESSAGES

```
/* NO_ERROR                    0 */ "",
/* ERR_IND_REG_ERR             1 */ "Got 0x%08X @ 0x%08X. Expected 0x%08X",
/* ERR_CHIP_RUNNING            2 */ "Cannot perform task while chip is running",
/* ERR_BAD_NIC                 3 */ "Invalid NIC device",
/* ERR_READ_ONLY_CLEAR         4 */ "Read only bit %s got changed after writing zero at
offset 0x%X",

/* ERR_READ_ONLY_SET           5 */ "Read only bit %s got changed after writing one at
offset 0x%X",
/* ERR_READ_WRITE_NOT_CLEAR    6 */ "Read/Write bit %s did not get cleared after writing
zero at offset 0x%X",
/* ERR_READ_WRITE_NOT_SET      7 */ "Read/Write bit %s did not get set after writing one at
offset 0x%X",
/* ERR_BIST                    8 */ "BIST failed",
/* ERR_INTERRUPT               9 */ "Could not generate interrupt",

/* CMD_ABORT                  10 */ "Aborted by user",
/* ERR_DMA_TXDATA             11 */ "Tx DMA:Got 0x%08X @ 0x%08X. Expected 0x%08X",
/* ERR_DMA_RXDATA             12 */ "Rx DMA:Got 0x%08X @ 0x%08X. Expected 0x%08X",
/* ERR_TXDMA                  13 */ "Tx DMA failed",
/* ERR_RXDMA                  14 */ "Rx DMA failed",

/* ERR_MEM                    15 */ "Data error, got 0x%08X at 0x%08X, expected 0x%08X",
/* ERR_MEM2                   16 */ "Second read error, got 0x%08X at 0x%08X, expected
0x%08X",
/* ERR_EEP_WRITE              17 */ "Failed writing NVRAM at 0x%04X",
/* ERR_EEP_READ               18 */ "Failed reading NVRAM at 0x%04X",
/* ERR_EEP_DATA               19 */ "NVRAM data error, got 0x%08X at 0x%04X, expected
0x%08X",

/* ERR_FILE_OPEN              20 */ "Cannot open file %s",
/* ERR_BAD_CPU_CFG            21 */ "Invalid CPU image file %s",
/* ERR_IMAGE_SIZE             22 */ "Invalid CPU image size %d",
/* ERR_MALLOC                 23 */ "Cannot allocate memory for size %d",
/* ERR_CPU_RESET              24 */ "Cannot reset %cX CPU",

/* ERR_CPU_NO_RESP            25 */ "%cx CPU does not respond",
/* ERR_CPU_TEST               26 */ "%cx CPU test failed",
/* ERR_DMA_RANGE              27 */ "Invalid Test Address Range\nValid NIC address is
0x%08X-0x%08X and exclude 0x%08X-0x%08X",
/* ERR_DMA_DATA               28 */ "DMA:Got 0x%02X @ 0x%08X. Expected 0x%02X\nSRAM
data=0x%02X @ 0x%08X",
/* ERR_PHY_ID                 29 */ "Unsupported PhyId %04X:%04X",

/* ERR_PHY_TOO_MANY_REG       30 */ "Too many registers specified in the file, max is %d",
/* ERR_VPD_WRITE              31 */ "Cannot write to VPD address %04X",
/* ERR_VPD_DATA               32 */ "VPD data error, got %08X @ 0x%04X, expected %08X",
/* ERR_NO_LINK                33 */ "No good link! Check Loopback plug",
/* ERR_DATA_TX                34 */ "Cannot TX Packet!",

/* ERR_DATA_TX_MISSING        35 */ "Requested to Tx %d. Only %d is transmitted",
/* ERR_DATA_RX_MISSING        36 */ "Expected %d packets. Only %d good packet(s) have been
received\n%d unknown packets have been received.\n%d bad packets have been received.",
/* ERR_INVALID_TEST           37 */ "%c%d is an invalid Test",
/* ERR_EEPROM_CHECKSUM        38 */ "NVRAM checksum error",
/* ERR_READING_WOL_PXE        39 */ "Error in reading WOL/PXE",

/* ERR_READING_WOL_PXE        40 */ "Error in writing WOL/PXE",
/* ERR_NO_EXT_SRAM            41 */ "No external memory detected",
/* ERR_DMA_LEN                42 */ "DMA buffer %04X is too large, size must be less than
%04X",
/* ERR_FILE_TOO_BIG           43 */ "File size %d is too big, available space is %d",
/* ERR_INVALID                44 */ "Invalid %s",

/* ERR_WRITE                  45 */ "Failed writing 0x%x to 0x%x",
/* CMD_QUIT                   46 */ "",
/* ERR_CPU_MEM_ERR            47 */ "%s CPU access error @ %08X, expected %08X but got
%08X",
/* ERR_ENDIF                  48 */ "",
/* ERR_ROM_D_DATA             49 */ "ROM disable error, data returned while disabled",
```

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/* ERR_CHIP_NOT_RUNNING      50 */ "Cannot perform task while chip is not running. (need
driver)",
/* ERR_NO_REG_DEF            51 */ "Cannot open register define file or content is bad",
/* ERR_ASF_RST               52 */ "ASF Reset bit did not self-cleared",
/* ERR_ASF_ATTN_LOC          53 */ "ATTN_LOC %d cannot be mapped to %cX CPU event bit %d",
/* ERR_ASF_RST_VAL           54 */ "%s Regsiter is not cleared to zero after reset",

/* ERR_ASF_PA_TIMER          55 */ "Cannot start poll_ASF Timer",
/* ERR_ASF_PA_CLEAR          56 */ "poll_ASF bit did not get reset after acknowleged",
/* ERR_ADF_NO_STAMP          57 */ "Timestamp Counter is not counding",
/* ERR_ADF_NO_TIMER          58 */ "%s Timer is not working",
/* ERR_ASF_EVENT             59 */ "Cannot clear bit %s in %cX CPU event register",

/* ERR_EEP_FILESIZE          60 */ "Invalid %s file size, expected %d but only can read %d
bytes",
/* ERR_MAGIC_VALUE           61 */ "Invalid magic value in %s, expected %08x but found
%08x",
/* ERR_EEP_FMT               62 */ "Invalid manufacture revision, expected %c but found
%c",
/* ERR_EEP_BOOTVER           63 */ "Invalid Boot Code revision, expected %d.%d but found
%d.%d",
/* ERR_EEP_CANNOT_WRITE      64 */ "Cannot write to NVRAM",

/* ERR_EEP_CANNOT_READ       65 */ "Cannot read from NVRAM",
/* ERR_BAD_CHECKSUM          66 */ "Invalid Checksum",
/* ERR_BAD_MAGIC_VALUE       67 */ "Invalid Magic Value",
/* ERR_MAC                   68 */ "Invalid MAC address, expected %02X-%02X-%02X-%02X-%02X-
%02X",
/* ERR_BUS                   69 */ "Slot error, expected an UUT to be found at location
%02X:%02X:00",

/* ERR_SPEC_MEM              70 */ "Adjacent memory has been corrupted while testing block
0x%08x-0x%08x\nGot 0x%08x @ address 0x%08x. Expected 0x%08x",
/* ERR_NOT_SUPPORT           71 */ "The function is not Supported in this chip",
/* ERR_BAD_CRC               72 */ "Packets received with CRC error",
/* ERR_MII_ERR_BITS_SET      73 */ "MII error bits set: %04x",
/* ERR_INIT_MAC              74 */ "CPU does not initialize MAC address register
correctly",

/* ERR_FW_FILE_FORMAT        75 */ "Invalid firmware file format",
/* ERR_RESET_TX_CPU          76 */ "Resetting TX CPU Failed",
/* ERR_RESET_RX_CPU          77 */ "Resetting RX CPU Failed",
/* ERR_INVALID_MAC_ADDR      78 */ "Invalid MAC address",
/* ERR_MAC_REG               79 */ "Mac address registers are not initialized correctly",

/* ERR_BOOTCHECKSUM          80 */ "NVRAM Bootstrap checksum error",
/* ERR_VPD_READONLY          81 */ "Write operation changed VPD read only data from %08X to
%08X at %04X",
/* ERR_VPD_READ              82 */ "Cannot read data from VPD address %04X",
/* ERR_MEM_READ              83 */ "Memory read and compare error",
/* ERR_MEM_WRITE             84 */ "Memory write error",  /* no longer in use */

/* ERR_PXE_PGM               85 */ "PXE Programming Error",
/* ERR_PXE_VFY               86 */ "PXE Verification Error",
/* ERR_EXT_MEM_EXE_TIMOUT    87 */ "Cannot execute code from external memory, pc=%08X",
/* ERR_EXT_MEM_SIZE          88 */ "External memory size detection error",
/* ERR_RESET_TIMEOUT         89 */ "Reset Time",

/* ERR_MSI_ERR_NOTCLEAR      90 */ "MSI Error bits are not cleared after reset",
/* ERR_MSI_DATA              91 */ "MSI expected %04X, but read %04X at %08X",
/* ERR_MEM_INIT              92 */ "mem pool initialization failed",
/* ERR_MEM_UNINIT            93 */ "mem pool un-initialization failed",
/* ERR_PCI_REGS_WIDTH        94 */ "Read/Write PCI regs width %d affects wider than
expected at offset 0x%X",

/* ERR_LINK_STATUS           95 */ "Link status error in auto-polling mode",
/* ERR_PHY_INTERRUPT         96 */ "Phy interrupt did not happen",
/* ERR_EEP_BIT_BANG          97 */ "EEprom test fails in bit-bang mode at address %X",
/* ERR_ROM_SIZE              98 */ "ROM size error\nExpected %08X but read %08X at\nROM Bar
(0x30) register with %d written to ROM size reg.(0x88)",
/* ERR_ROM_DATA              99 */ "Data Error\nExpected %08X but read %08X at %08X",

/* ERR_ROM_ENABLE           100 */ "Expansion ROM Desired bit is not set after loading
firmware",
/* ERR_GPIO                 101 */ "GPIO%d Error, write=%d, read=%d",
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/* ERR_GPIO5704             102 */ "Dev:%d Expected GPIO 0/1/2 = %d/%d/%d, but read as
%d/%d/%d",
/* ERR_BIST_NOT_DONE        103 */ "Bist test did not complete internally",
/* ERR_BIST_DATA_MISCMP     104 */ "Bist data miscompared at bit: %d out: %d exp: %d",

/* ERR_CPU_NO_RESPONSE      105 */ "No Response from firmware",
/* ERR_CPU_ERR_CODE         106 */ "%s CPU returned result %d, key = %d",
/* CMD_LOOP                 107 */ "",
/* CMD_SKIP                 108 */ "",
/* CMD_ELSE,                109 */ "",

/* CMD_ELSEIF,              110 */ "",
/* CMD_BREAK,               111 */ "",
/* CMD_ENDWHILE,            112 */ "",
/* ERR_BYTE,                113 */ "Byte access error: expected %02x at %08x but got %02x",
/* ERR_WORD,                114 */ "Wrd acc err: exp %04x at %08x but got %04x (need
flshdg5x.bin v2.3 or newer)",

/* ERR_NO_LINK_DOWN         115 */ "No link down found",
/* ERR_MISMATCHED_DEVICEID  116 */ "bootcode Image file belongs to %d family, does not
match with board %d",
/* ERR_INVALID_DATA_SIZE    117 */ "Invalid data size",
/* ERR_MAC_ADDR_ENDED       118 */ "Runs out of Mac Address",
/* ERR_ILLEGAL_MAC_ADDR     119 */ "Illegal Mac Address",

/* ERR_BIST_DATA_INVALID    120 */ "Invalid bist data from buffer at %d",
/* ERR_INVALID_BOND_ID      121 */ "Invalid bond id",
/* ERR_BAD_CPU_RESET        122 */ "CPU reset failed, register 5034 is 0x%x",
/* ERR_INCORRECT_VERSION    123 */ "Incorrect version",
/* ERR_MISMATCH_CFG_VERSION 124 */ "Mismatched CFG and FW Image version",
/* ERR_NOT_SUPP_CFG_BW      125 */ "Current ASF_T_VERSION is not backward compatible",
/* ERR_POST_1G_LB           126 */ "1G Tx/Rx Lines Have A Short/Open",
/* ERR_DRIVER               127 */ "Driver %d.%d.%d or later is required to run this
function",
/* ERR_TXDMA_OVERFLOW       128 */ "TxDMA Overflow",
/* ERR_RXDMA_OVERFLOW       129 */ "RxDMA Overflow",
/* ERR_DRIVER_BAD_STATUS    130 */ "Driver returned error status=%d",
/* ERR_INVALID_HANDLE       131 */ "Invalid Handle",
/* ERR_SOCKET               132 */ "Socket open error%d %s",
/* ERR_SIOCGIFINDEX         133 */ "ioctl(): SIOCGIFINDEX failed",
/* ERR_BIND                 134 */ "bind() failed: %s",
/* ERR_SETSOCKOPT           135 */ "setsockopt() failed:%d %s",
/* ERR_FCNTL                136 */ "fcntl() failed:%d %s",
/* ERR_SEND                 137 */ "send() failed (cnt=%d): %d %s",
/* ERR_RECEIVE              138 */ "recvfrom() failed (cnt=%d): %d %s",
/* ERR_FALSE_CARRIER        139 */ "Error! False Carrier Detected During The Test",
/* ERR_INV_OPT              140 */ "Invalid Options",
/* ERR_INV_DEV              141 */ "Found Rv = %s, Expected Rv = %s due to -ckdev value",
/* ERR_IRQ                  142 */ "Invalid IRQ %d",
/* ERR_TIMEOUT              143 */ "Timeout",
/* ERR_PKT_DATA             144 */ "Packet data error at offset %d, expected %02X but
recevied %02X",
/* ERR_MAC_ZERO             145 */ "Zero Mac Address in Mac Register",
/* ERR_MAC_MIS_REG          146 */ "Mac Address MisMatch: Got %02X-%02X-%02X-%02X-%02X-
%02X.",
/* ERR_CPU_ACC              147 */ "%cx CPU failed on %s bit access to address %08X",
/* ERR_CPU_MEM              148 */ "%cx CPU failed on memory pattern %08X at address %08X",
/* ERR_CPU_INSTR            149 */ "%cx CPU Instruction test failed",
/* ERR_BUS_LINK             150 */ "PCI-E Bus Link Error",
/* ERR_ASF_FILE_VER         151 */ "ASF File versions Error",
/* ERR_ASF_VS_DEV           152 */ "ASF VS Device Error",
/* ERR_MISMATCHED_DEVICEID_1  153 */ "bootcode Image file belongs to unknown family, does
not match with board %d",
/* ERR_MISMATCHED_DEVICEID_2  154 */ "bootcode Image file belongs to %d family, does not
match with unknown board",
/* ERR_CPU_FETCH              155 */ "CPU Fetch Test Error: Breakpoint reads %x",
/* ERR_UMPLB                  156 */ "UMP loopback failed, Total Good packet %d",
/* ERR_UMPCTRL                157 */ "Error: UMPCtrl 0x5F0 = %x",
/* ERR_REG_TABLE              158 */ "Error: Unable to create Reg Table",
/* ERR_FW_IMAGE_SIZE          159 */ "Error: Firmware image size (%d) larger than NVRAM
size (%d)",
/* ERR_MISS_PXE               160 */ "Error: %s firmware cannot be found in %s",
/* ERR_MISS_ASF               161 */ "Error: %s firmware cannot be found in %s",
/* ERR_NVRAM_DIR              162 */ "Error: NVRAM Directory",
/* ERR_MISS_UMP               163 */ "Error: %s firmware cannot be found in %s",
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/* ERR_CPU_MEM2              164 */ "%s CPU memory error @ %08X, expected %08X but got
%08X",
/* ERR_SERIAL1               165 */ "PCIE Serial Device Number Capability Not Found.",
/* ERR_SERIAL2               166 */ "PCIE Serial Device Number Match Failure.",
/* ERR_POWER1                167 */ "PCIE Power Budget Capability Not Found.",
/* ERR_POWER2                168 */ "PCIE Power Budget Error (ad=%d, saw=%x, exp=%x).",
/* ERR_UMP_VS_DEV            169 */ "UMP VS Device Error",
/* ERR_HM_BR_LANES            170 */"HM Bridge Lanes Error: %d PCI-E lanes are actually
linked and running, expected %d.",
/* ERR_BRIDGE                171 */ "Invalid bridge.",
/* ERR_NO_LINK10           172 */ "No good link at 10 Mbits/s! Check Loopback plug",
/* ERR_NO_LINK100          173 */ "No good link at 100 Mbits/s! Check Loopback plug",
/* ERR_NO_LINK1000         174 */ "No good link at 1000 Mbits/s! Check Loopback plug",
/* ERR_DMA_SHASTA          175 */ "\nFailed! Saw=%x @ %x, Exp=%x from %x\n",
/* ERR_SECFG_CONT          176 */ "SECFG Config Error. Line %d",
/* ERR_SECFG_INVALID       177 */ "Invalid Argument in SECFG Config File at Line %d",
/* ERR_NV_SELFBOOT         178 */ "NVRAM is SELFBOOT",
/* ERR_PART_NUM            179 */ "Error Part Number Chick Failed"
/* ERR_UMPECHO             180 */ "UMP Echo - Debug Mode",
/* ERR_IMAGE_CHECKSUM      181 */ "Firmware image checksum error",
/* ERR_INVALID_SMB         182 */ "Invalid SMB Address",
/* ERR_LOM_CFG             183 */ "LOM CONF Bit mismatch in Reg 178 and Reg 7C04",
/* ERR_ISCSI_PGM           184 */ "iSCSI Programming Error",
/* ERR_BAD_CHIP_REV        185 */ "Invalid Chip Rev.",
/* ERR_NO_CPU              186 */ "Device has no internal CPU",
/* ERR_BAD_PARITY_VALUE    187 */ "Invalid Parity.",
/* ERR_BAD_VPD_CHKSUM      188 */ "Invalid VPD Checksum",
/* ERR_ESWITCH_CTRL_TO     189 */ "Halting E Switch Ctrl time out. %x",
/* ERR_ESWITCH_EVENT       190 */ "ESWITCH event not set. %x",
/* ERR_ESWITCH_TO          191 */ "E Switch time out. %x",
/* ERR_ESWITCH_ARBIT_TO    192 */ "Halting E Switch Ctrl Arbitor time out. %x",
/* ERR_ESWITCH_INTR        193 */ "ESWITCH interrupt not set. %d",
/* ERR_ESWITCH_STATUS      194 */ "ESWITCH status word not set. %x"
```