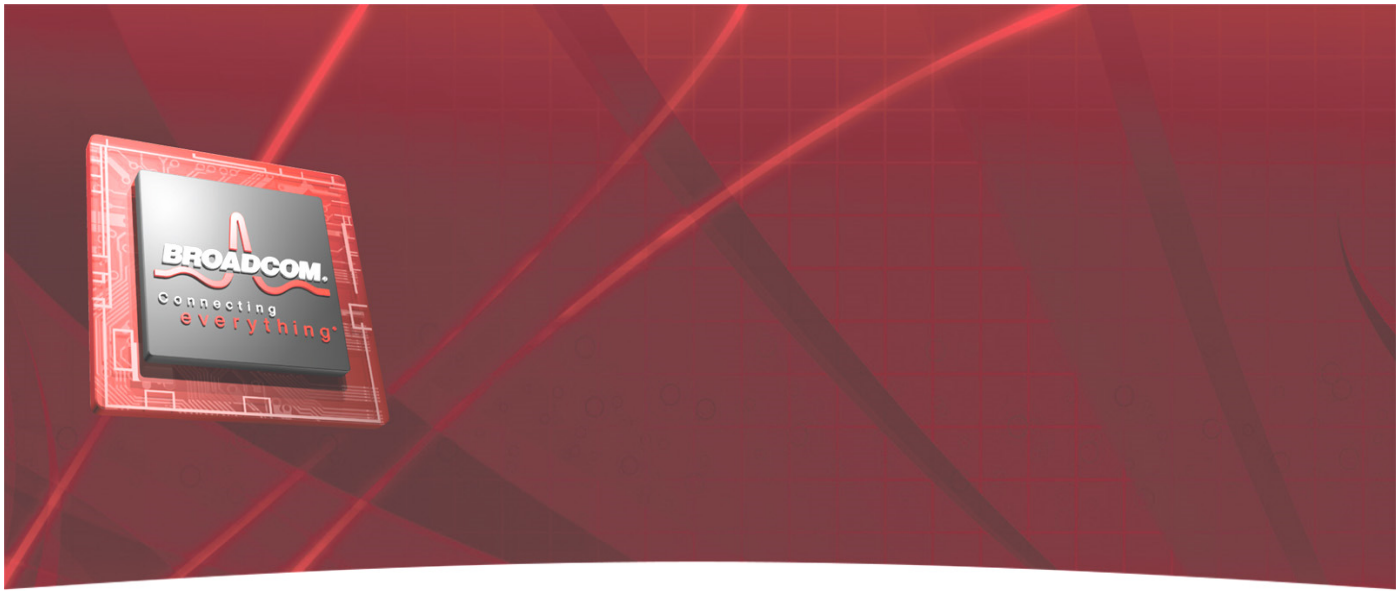

Bmemperf

User Guide

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Revision History

Revision	Date	Change Description	Editor
1.0	08/31/2015	Initial version	C. Detrick

Table of Contents

What is bmemperf?

The bmempef utility helps answer the following questions about system memory usage:

1. Who are the top users of the memory bandwidth of systems at any given time?
2. What is the system-wide memory bandwidth consumed or memory load on each memory controller?
3. How can I monitor/measure/provide detailed memory usage information for any client in the system.
4. How can I provide information about the RTS
5. How can I provide comparison BW-allowed and actual-BW-used for real time clients on the memory bus.

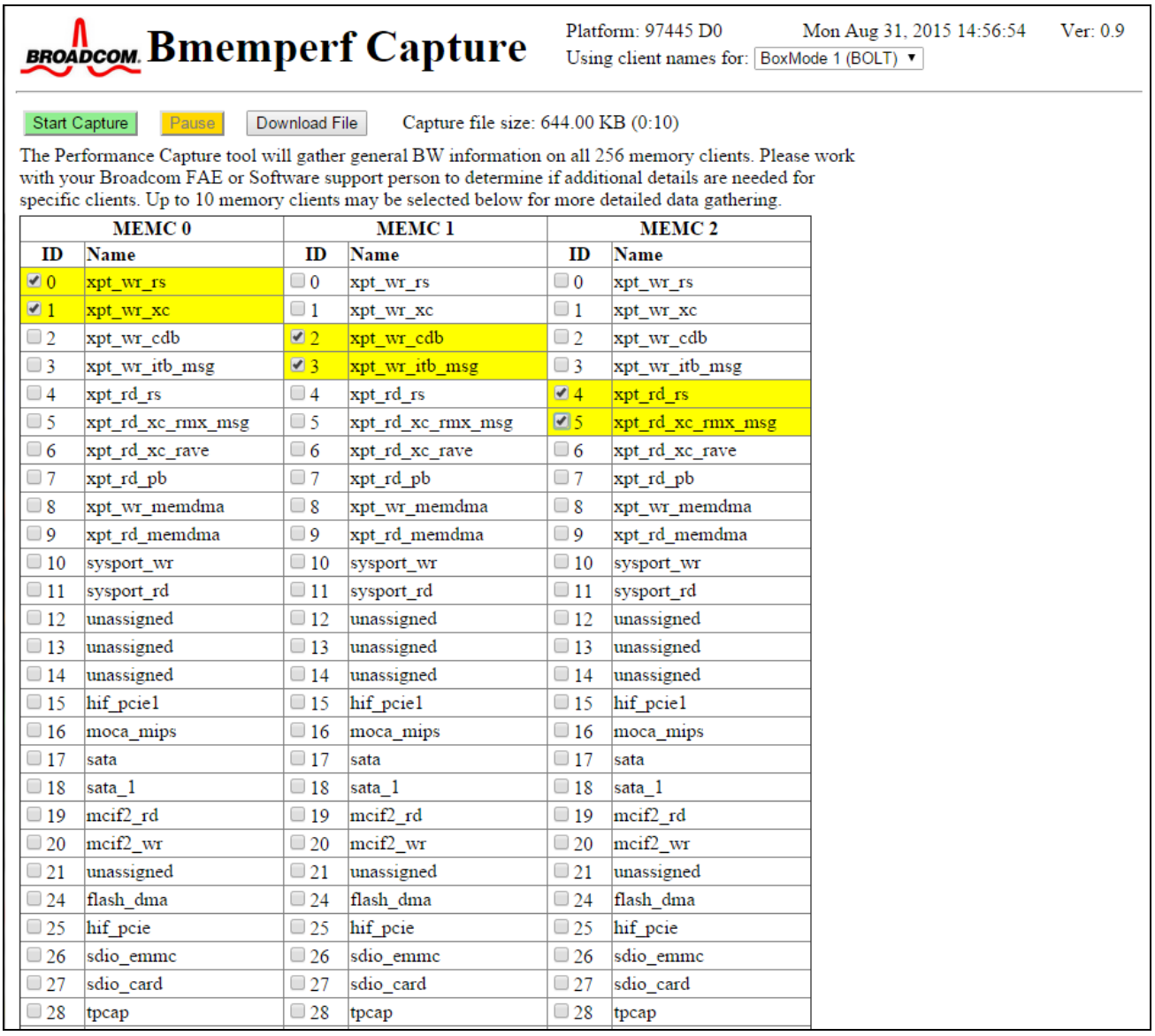
The bmemperf tool is a standalone utility. It runs on STBs running Linux and provides the above information at run time. It collects and captures data at one-second intervals.

bmemperf comes in two flavors. A web capture utility and a separate web player utility that Broadcom uses to analyze customer's data and present the data in a useful format.

bmemperf Web Tool

Bmemperf web interface is the most convenient way to monitor and debug system memory bandwidth performance. The following is the snapshot of the bmemperf capture web interface. For the instructions of how to run the bmemperf capture web tool, see the sections on how to build and run bmemperf.

On the Capture page, the customer should work with the Broadcom FAE or Software support person to determine if additional details are needed for specific clients. Up to 10 memory clients may be for the capture for more detailed data gathering.



BROADCOM. **Bmemperf Capture**

Platform: 97445 D0 Mon Aug 31, 2015 14:56:54 Ver: 0.9
Using client names for: BoxMode 1 (BOLT)

Start Capture | Pause | Download File | Capture file size: 644.00 KB (0:10)

The Performance Capture tool will gather general BW information on all 256 memory clients. Please work with your Broadcom FAE or Software support person to determine if additional details are needed for specific clients. Up to 10 memory clients may be selected below for more detailed data gathering.

MEMC 0		MEMC 1		MEMC 2	
ID	Name	ID	Name	ID	Name
☑ 0	xpt_wr_rs	☐ 0	xpt_wr_rs	☐ 0	xpt_wr_rs
☑ 1	xpt_wr_xc	☐ 1	xpt_wr_xc	☐ 1	xpt_wr_xc
☐ 2	xpt_wr_cdb	☑ 2	xpt_wr_cdb	☐ 2	xpt_wr_cdb
☐ 3	xpt_wr_itb_msg	☑ 3	xpt_wr_itb_msg	☐ 3	xpt_wr_itb_msg
☐ 4	xpt_rd_rs	☐ 4	xpt_rd_rs	☑ 4	xpt_rd_rs
☐ 5	xpt_rd_xc_rmx_msg	☐ 5	xpt_rd_xc_rmx_msg	☑ 5	xpt_rd_xc_rmx_msg
☐ 6	xpt_rd_xc_rave	☐ 6	xpt_rd_xc_rave	☐ 6	xpt_rd_xc_rave
☐ 7	xpt_rd_pb	☐ 7	xpt_rd_pb	☐ 7	xpt_rd_pb
☐ 8	xpt_wr_memdma	☐ 8	xpt_wr_memdma	☐ 8	xpt_wr_memdma
☐ 9	xpt_rd_memdma	☐ 9	xpt_rd_memdma	☐ 9	xpt_rd_memdma
☐ 10	sysport_wr	☐ 10	sysport_wr	☐ 10	sysport_wr
☐ 11	sysport_rd	☐ 11	sysport_rd	☐ 11	sysport_rd
☐ 12	unassigned	☐ 12	unassigned	☐ 12	unassigned
☐ 13	unassigned	☐ 13	unassigned	☐ 13	unassigned
☐ 14	unassigned	☐ 14	unassigned	☐ 14	unassigned
☐ 15	hif_pcie1	☐ 15	hif_pcie1	☐ 15	hif_pcie1
☐ 16	moca_mips	☐ 16	moca_mips	☐ 16	moca_mips
☐ 17	sata	☐ 17	sata	☐ 17	sata
☐ 18	sata_1	☐ 18	sata_1	☐ 18	sata_1
☐ 19	mcif2_rd	☐ 19	mcif2_rd	☐ 19	mcif2_rd
☐ 20	mcif2_wr	☐ 20	mcif2_wr	☐ 20	mcif2_wr
☐ 21	unassigned	☐ 21	unassigned	☐ 21	unassigned
☐ 24	flash_dma	☐ 24	flash_dma	☐ 24	flash_dma
☐ 25	hif_pcie	☐ 25	hif_pcie	☐ 25	hif_pcie
☐ 26	sdio_emmc	☐ 26	sdio_emmc	☐ 26	sdio_emmc
☐ 27	sdio_card	☐ 27	sdio_card	☐ 27	sdio_card
☐ 28	tpcap	☐ 28	tpcap	☐ 28	tpcap

Building Bmemperf Tool

Where to find source:

bmemperf is located under BSEAV/tools/bmemperf folder.

Dependencies:

bmemperf needs RDB header files located in magnum/basemodules/chp/include.

Preparation for build:

To build bmemperf, run the ‘plat’ environment script for your platform and do a ‘make’. You can also set the following variables explicitly without using the ‘plat’ script:

1. **export NEXUS_PLATFORM=97445**
2. **export BCHP_VER=D0**
3. **export B_REFSW_ARCH=arm-linux**
4. add toolchain to path (e.g. **export PATH=/opt/toolchains/stbgcc-4.8-1.0/bin/:$PATH**) (Your toolchain path may be different)

Alternatively, the 'plat' command will set all of the above external variables for you.

e.g: **plat 97445 D0**

How to build

1. cd BSEAV/tools/bmemperf
2. make (this will also make the Boa web server and install it to your Nexus bin directory)

Binary Location

Upon successful build completion, the binaries are copied to:

`obj.<platform>/nexus/bin`

Running Bmemperf Web Tools

Launching the web bmemperf

On the STB, run a script named 'boa'. The ‘boa’ script will start the boa web server along with the bmemperf daemon. It will also print out a URL that can be copied and pasted to a browser. Here is some sample output:

```
# boa
boa is not currently running.
No logger processes are currently running.
The new boa PID is: 1578
Connect to the STB using http://10.14.236.146
```

```
bmemperf server is not currently running.

bmemperf_server is pid:  1616
```

Note that the ‘boa’ command will launch the boa web server as well as the bmemperf_server data gatherer tool.