Intel Arria® 10 FPGA - Iperf Design for Nios® V/m Processor

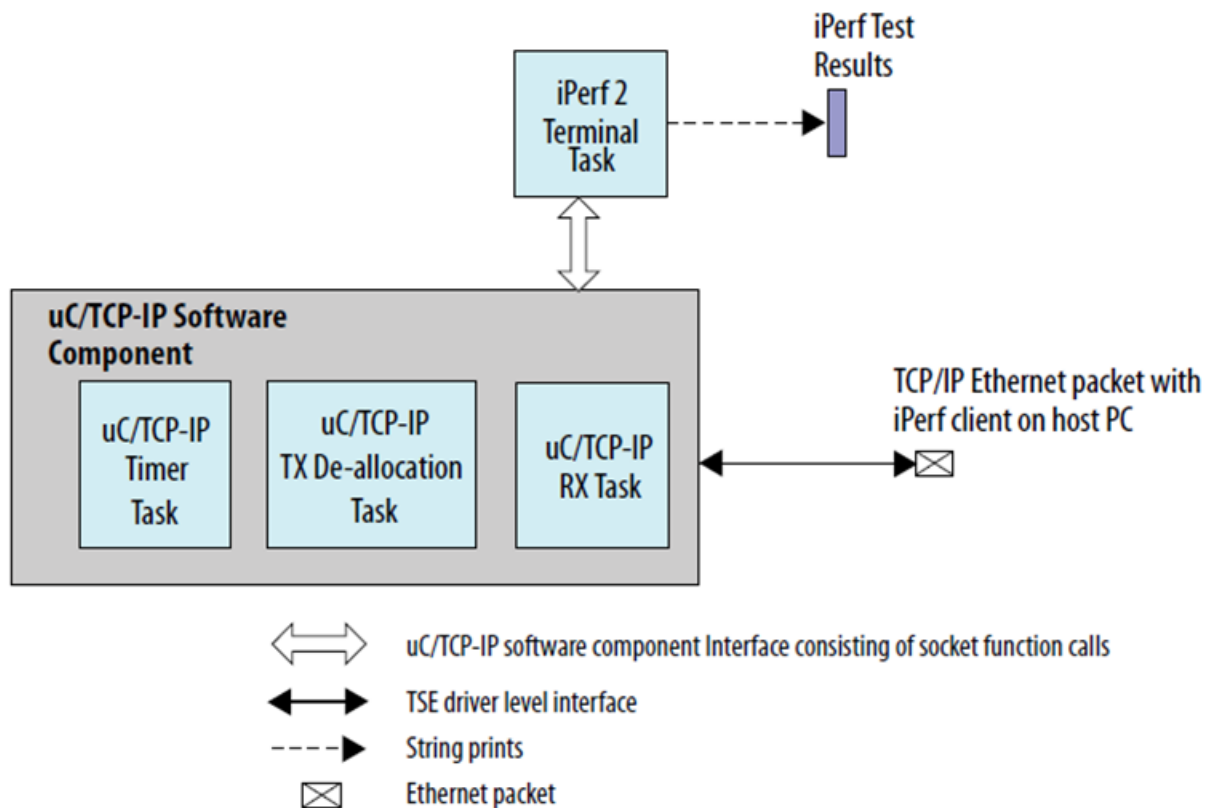# Table of Contents

Theory Of Operation

Block Diagram

Description

Perf 2 is a benchmarking tool for measuring performance between two systems, and it can be used as a server or a client.

An iPerf server receives an iPerf request sent over a TCP/IP connection from any iPerf clients and runs the iPerf test according to the provided arguments. Each test reports the bandwidth, loss, and other parameters.

IP Cores
- NIOS V/m soft processor core
- Triple-Speed Ethernet Intel FPGA IP
- altera_msgdma
- On Chip RAM
- JTAG UART

Executing the Design on dev kit

Note: Please refer to the readme.txt file in the package for the steps to create the design, application and generate the programing files.

- Unpackage/extract the design in your working directory
- Locate the "ready_to_test" folder within the package
- The folder contains the necessary files for executing the application on the board. Refer to the readme file for the steps to program the application files on the board.
- Validate the design by observing the prints on the terminal.

Expected Result

The following is the output as observed on the JTAG UART terminal. The output is analogous to the logic from the application code.

```
[crt0.S] Calling alt_main.
[alt_main.c] Entering alt_main, calling alt_irq_init.
[alt_main.c] Done alt_irq_init, calling alt_os_init.
[alt_main.c] Done OS Init, calling alt_sem_create.
[alt_main.c] Calling alt_sys_init.
[alt_main.c] Done alt_sys_init.
[alt_main.c] Redirecting IO.
[alt_main.c] Calling C++ constructors.
[alt_main.c] Calling atexit.
[alt_main.c] Calling main.
[main] Main Task TOS: 0x51ca8
[uc_main_task]
[uc_main_task] ================================================================
[uc_main_task]                         uC/TCP-IP Setup
[uc_main_task] ================================================================
[uc_main_task] TSE MAC base: 0x212000.
[uc_main_task] Rx csr name: /dev/sys_tse_msgdma_rx_csr.
[uc_main_task] Tx csr name: /dev/sys_tse_msgdma_tx_csr.
[uc_main_task] INFO: Initializing network stack.
[conf_static] Configuring (static) IP address
[conf_static]  * Address: 192.168.130.5
[conf_static]  * Mask:    255.255.255.0
[conf_static]  * Gateway: 192.168.130.254
[uc_main_task] INFO: Initializing network stack: Success. Using interface 1.

IPerf Terminal


>


-----------------------------------------------------------
TEST ID :  1
***********************************************************
TCP Server listening on 192.168.130.5 Port  5001
Window size:  4096 bytes

Buffer size:  8192 bytes

-----------------------------------------------------------


juart-terminal: exiting due to user timeout
200 OK
Content-Length: 381

-----------------------------------------------------------
Client connecting to 192.168.130.5, TCP port 5001
TCP window size: 85.0 KByte (default)
-----------------------------------------------------------
[  3] local 192.168.130.254 port 53676 connected with 192.168.130.5 port 5001
[ ID] Interval        Transfer     Bandwidth
[  3]  0.0-15.0 sec  88.4 KBytes  48.3 Kbits/sec
```