



InterStream[®] 4322C Product Overview

2 port 10 Gbps Ethernet Packet Capture Network Adapter FPGA based

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KOREA

SYSMATE

Introduction

■ 10Gbps Ethernet Packet Capture Network Adapter FPGA based

- Real time line speed packet capture from 10Gbps network *without any lose*
- Guarantee **Minimum Latency** between Receiving and Uploading(to user)
- High performance network interface card using **Offloading Functionality**
- High performance network interface card using **Load Balancing Functionality**
- **Low-Profile** compact size

- Network Interface
 - **IS4322C** – 10GBASE-LR/SR x 2 ports, **SFP+** Connectors SMF/MMF(Fiber)

- Applications:
 - Intrusion Detection/Prevention Systems.
 - Traffic Management Systems.
 - Inline Systems(required selective receive and forward)
 - Security Systems such Firewalls, UTM, ...



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Main Features

■ Dual 10Gbps Ethernet Interface

- **PCI-Express x8** Bus Interface
- Higher packet DMA performance with lower CPU consumption

■ Hardware-based Packet Capturing Engine

- Hardware-based guarantee **latency under 50 μ s** between receiving and uploading(to user)
- Hardware-based **IPv4 and IPv6 Parser**
- Hardware-based wire-speed **IP 5-tuple filtering** up to **8k-WL/16k-BL entries**(White List and Black List)
- Hardware-based packet **sampling(hash, flow, etc.)**, **snapping** and **timestamp**(Precision: 100 nsec, GPS/CDMA)
- Hardware-based **load balancing functionality(Maximum 8 user)**

■ Support for Linux O/S

- Support for **Linux Kernel** version 2.6.x
- Support for **Windows Server** 2003, 2008, ...
- Provide **ISN library** interface(SYSMATE's proprietary API libraries).
- **PCAP library** interface(Libpcap open source API libraries).

Functionalities of Our Cards in Inline Systems

■ Importance of Guarantee Low Latency and Traffic Stream on Inline Systems

- Inline Systems must guarantee low latency between receiving and forwarding, must not stop streaming network traffic between inbound network and outbound network in spite of any system error.

■ SYSMATE's Packet Memory Functionality

- The Packet Memory Technology guarantees low latency between receiving and forwarding using the memory, (which has received packets for a while) built in the card.

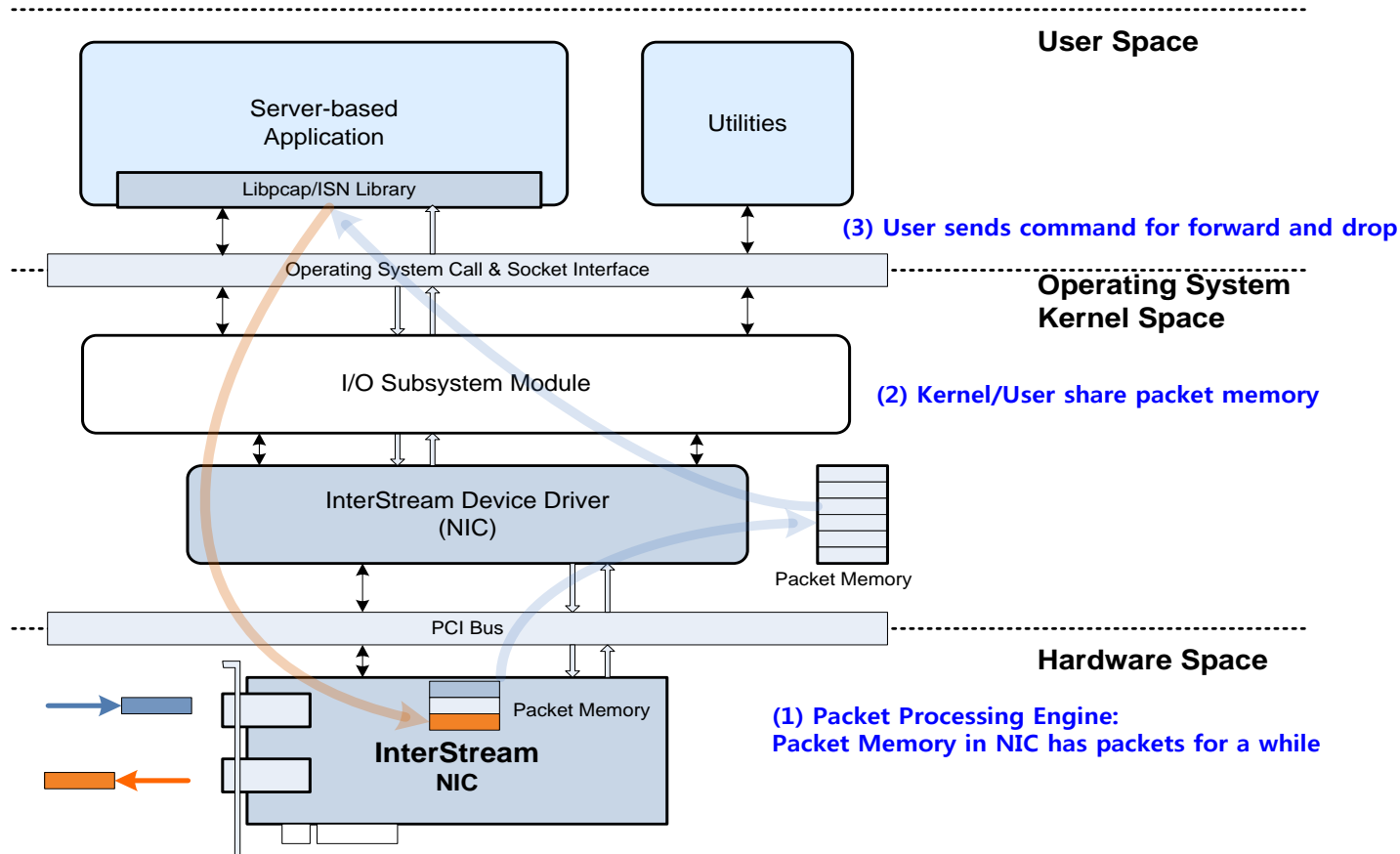
■ SYSMATE's FOD & HA Functionality

- The Fail Over Down Functionality has 3 modes such as inline, control and bypass. When the FOD mode is control, if the user application operates abnormally, the FOD mode transfers inline mode to bypass mode for guarantee traffic stream in the network.
- The High Available Functionality has 2 modes such as fail-over and fail-down. When the inline system operates abnormally, the inline system administrator can select bypass or block the traffic stream.

■ InterStream Inline-Adapter Customization

- We offer customers inline cards(1~20Gbps) customized. IPS systems(installed InterStream cards) of our customers have been verified in Korea market(KT, SKT, LG...), Japan market(NTT Docomo...) and etc.
- Now, IS4322C is the capture card, but we are ready to support it as the Inline card(customized).

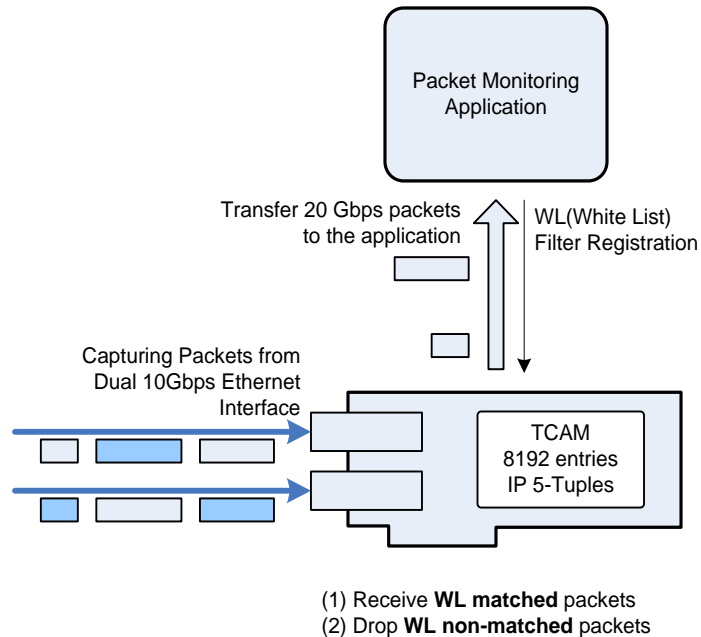
Packet Memory Technology



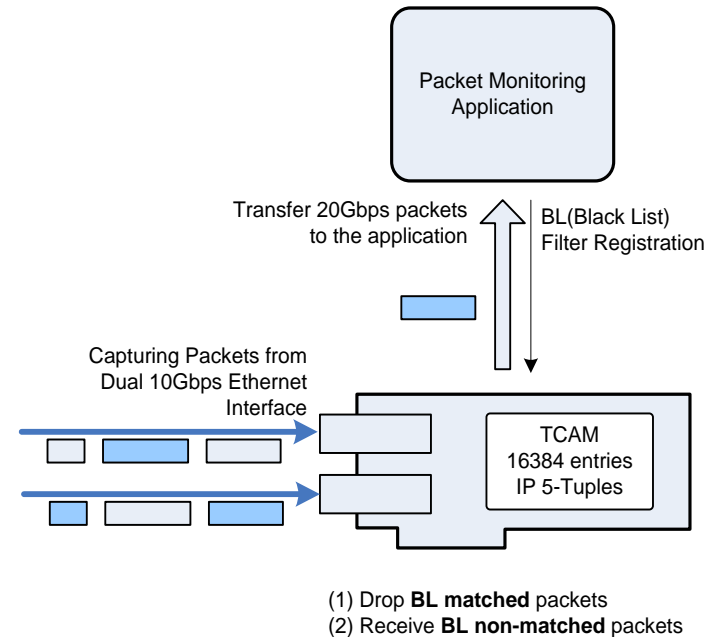
The Packet Memory Technology is a patent pending of SYSMATE Inc. and cannot be used without permission.

Huge Packet Filtering Functionality

White List Filter

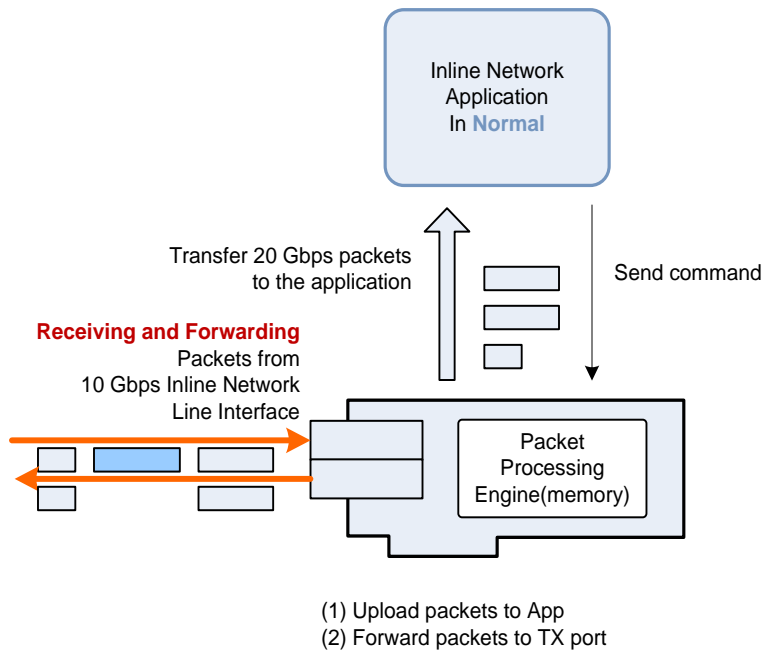


Black List Filter

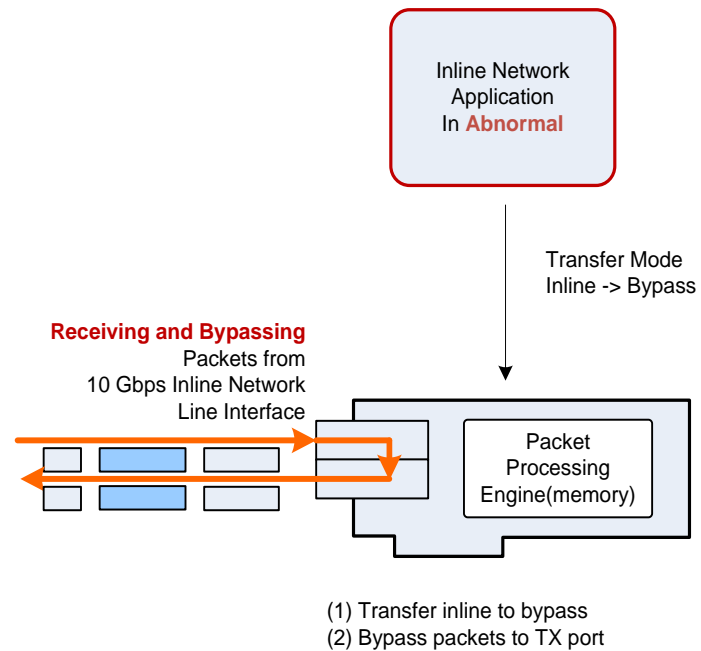


FOD & HA Functionality

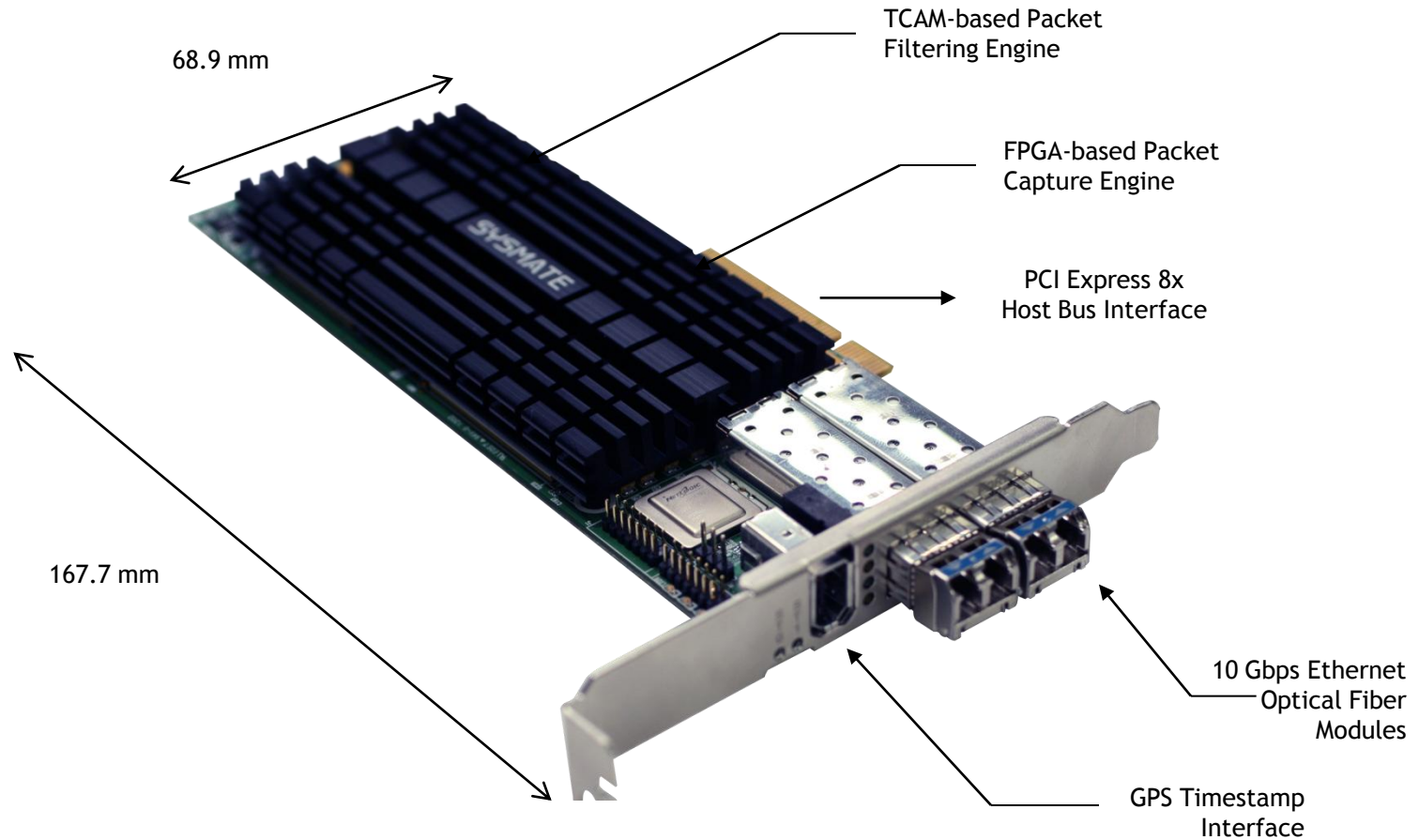
■ Inline mode



■ Bypass mode (HA Fail-Over)

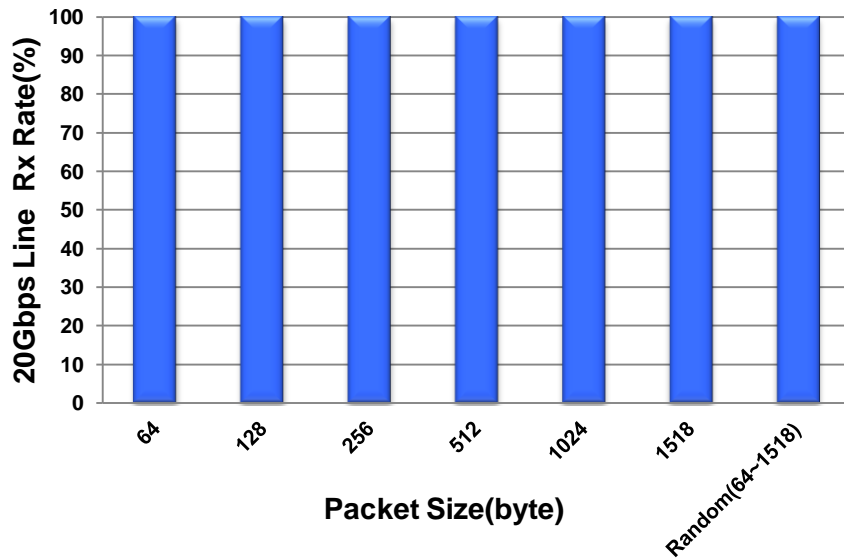


IS4322C Hardware Layout

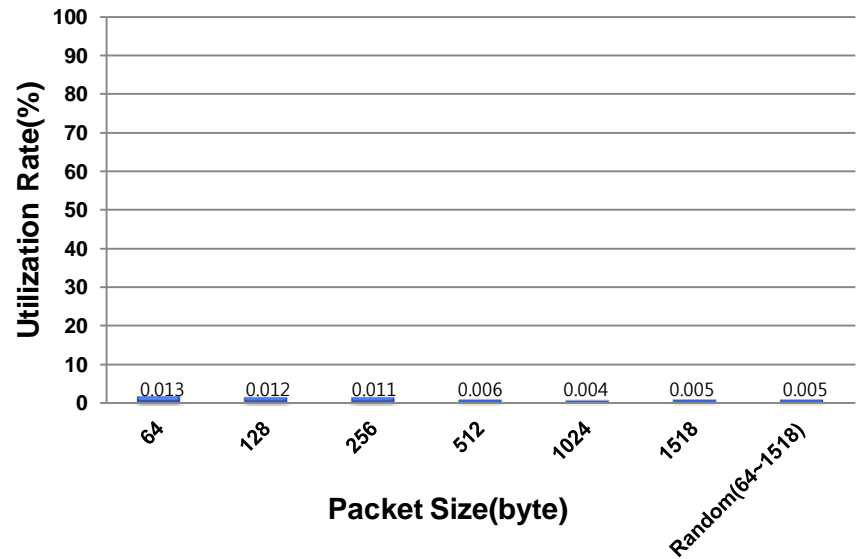


Performance

■ Capture Processing Performance(%)



■ CPU utilization(%)



The performance result of 8 channels load balancing without non-block and its CPU utilization.

Packet capture application using ISN library without any operations except calculation of statistics.
 Intel Server System with XEON E5620 2.67 GHz x 24EA, Memory 4G
 CentOS Linux-5.4 x86_64(2.6.18-164.el5 #1 SMP) Operating System

■ Thank You !

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