# MPAC-IP 4975
## 10Gb Ethernet Monitoring Card

**Enables monitoring applications to connect to 10Gb optical Ethernet networks, with integrated hardware acceleration that offloads filtering and DPI functions from the host.**

## KEY FEATURES

- 1 x 10Gb Ethernet monitoring input
- Up to 16,000 onboard n-tuple filters
   – IP address, TCP port, UDP port
- Libpcab BPF signature filters on board
- Programable text parsing
- Metadata for protocol layer identification
- 3 x 1Gb Ethernet outputs for packet forwarding
- Half-length PCIe, 4-lane

## KEY BENEFITS

- Usable with any PCIe compatible COTS hardware platform
- Monitoring of line rate 10Gb Ethernet
- Option to reduce host CPU cost by direct forwarding filtered traffic over GigE
- Integrated text filtering and packet classification accelerates subsequent DPI stages on host
- BPF filters programmable from standard libpcab

## APPLICATIONS

- IP monitoring
- Grooming of monitored traffic
- Lawful intercept
- Quality of Service monitoring

## OVERVIEW



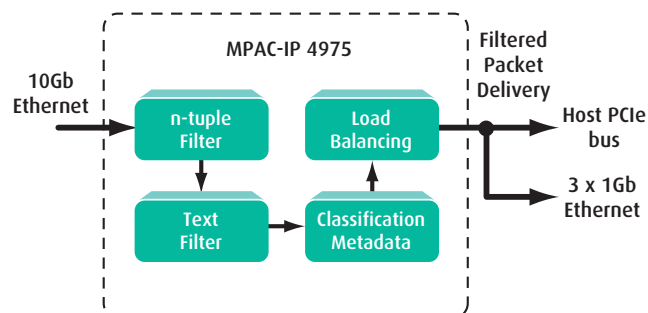1Gb Ethernet output

10Gb Ethernet input
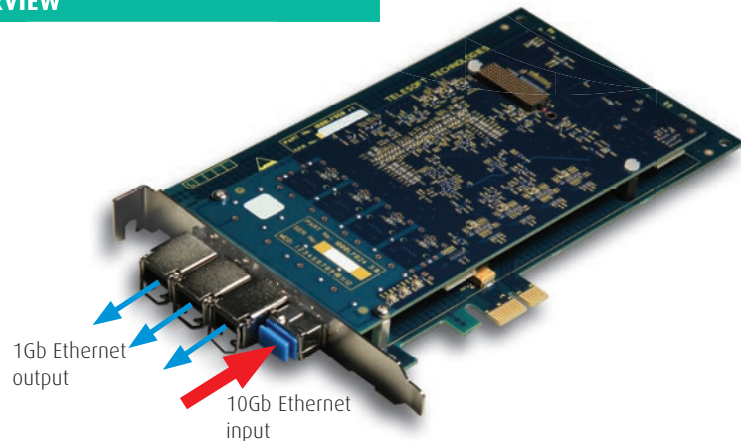
**The MPAC-IP 4975 Ethernet Monitoring Card is a network access, filtering and monitoring board for high rate Ethernet data networks. The board provides a 10Gb Ethernet monitoring input, three Gigabit Ethernet ports for the direct delivery of filtered data and FPGA based layer 2-4 packet filtering.**

Integrated filtering identifies each individual flow (n-tuple filtering) and discards unwanted packets. Selected flows can be further filtered with libpcap based Berkley Packet Filters (BPF). Classification functions provide the next stage of Deep Packet Inspection (DPI) with instant access to protocol layer boundaries and variable position text, accelerating the DPI function and off-loading processing from the host.

Filtered frames being forwarded can either be copied directly to host memory or forwarded to a remote server via the onboard dual Gigabit Ethernet ports. The line-speed filtering makes the IPAC card suitable for real-time or post analysis packet processing applications.

Direct forwarding of filtered packets over Ethernet removes the need for host processing of some (or even all) data. For example a voice over IP monitoring product may use the card to deliver signalling protocols (such as SIP or H.323) over the PCIe bus, while delivering voice content (such as RTP) directly over Ethernet to a recorder or playback system.



MPAC-IP 4975

10Gb Ethernet → n-tuple Filter → Load Balancing → Filtered Packet Delivery → Host PCIe bus → 3 x 1Gb Ethernet

Text Filter → Classification Metadata

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# 10Gb Ethernet
# Monitoring Card

## TECHNICAL SPECIFICATIONS

**10Gb Monitoring interface (input)**
· 10GBASE-T IEEE 802.3ae Ethernet (LAN)
· 10GBASE-W (WAN), interoperates with OC-192/STM-64 SDH/SONET
  using a lightweight SDH/SONET frame running at 9.953 Gbit/s
· 10GBASE-LR 1310nm optical
· SFP connector options
  – Metallic IEC 60603-7 8P8C (RJ45)
  – Optical LC-1310nm, -22dBm

**Range of delivery options for monitored data**
Options for delivery of monitored data:
1 – IP monitored on 10Gb Ethernet delivered over PCIe bus
2 – IP monitored on 10Gb Ethernet delivered over 1Gb Ethernet

**Optional GbE content delivery (output)**
· 3 x 1Gb Ethernet for delivery of filtered content
  – IEEE 802.3ab 1000BASE-T
  – SFP with IEC 60603-7 8P8C (RJ45) connector
  – 100m transmission over unshielded twisted-pair (UTP)
    Category 5 Cable

**Host interface**
· 4-lane PCIe bus

**Operating system**
· Telesoft software provided for Linux

**Physical and environmental**
· Half-length, full-height PCIe
· 10 watt power consumption
· Operating temperature: 0° to 55°C (storage: -20° to 70°C)
· Operating humidity: 8% to 90%

**Up to 16,000 configurable n-tuple filters**
· IP address (source, destination)
· TCP/UDP port (source, destination)
· Protocol type field

**Text based parsing**
· Pre-defined or user programmable
· Identifies fields in text based protocols

**Protocol classification**
· Identifies protocol layer boundaries
· Identifies variable position/length text fields

**Packet + N delivery**
· Delivers identified packet (matching filtering rules)
  plus the next N in the same flow (n-tuple match)

**Berkley Packet Filters (BPF)**
· Supported through standard libpcap access

**Load balancing**
· N-way (32-bit hash value)

# www.telesoft-technologies.com

**Headquarters:**

Telesoft Technologies Ltd
Observatory House
Blandford  Dorset
DT11 9LQ  UK

T.  +44 (0)1258 480880
F.  +44 (0)1258 486598
E.  sales@telesoft-technologies.com

**Americas:**

Telesoft Technologies Inc
Suite 601
4340 Georgetown Square
Atlanta  GA 30338  USA

T.  +1 770 454 6001
F.  +1 770 452 0130
E.  salesusa@telesoft-technologies.com

**India:**

Telesoft Technologies Ltd
(Branch Office) Building FC-24
Sector 16A  Noida  201301
Uttar Pradesh  India

T.  +91 120 466 0300
F.  +91 120 466 0301
E.  salesindia@telesoft-technologies.com