Standards Status: A Report from the Network Processing Forum

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Agenda

- The Network Processing Forum
- Working Group Updates
  - Benchmarking
  - Hardware
  - Software
  - Technical Marketing & Education
- Summary and Call to Action: Join Us!
Rise of Network Processing

- Advancing silicon and software performance enables flexibility
  - Rapid design using pre-defined functions
  - Run-time software-based support of new features
  - Rapid innovation in HW and SW simultaneously

- Hardware and software join for success!

\[ \text{Csix} + \text{CPIX FORUM} = \text{NPF} \]

Network Processing Forum
The Network Processing Forum

Value Proposition

The NP Forum encourages the growth and effective use of network processing technology (such as switch fabrics, NPUs, co-processors) through

- Specifications
- Benchmarking
- Interoperability
- Education
NP Forum Facts

- Formed in Feb. 2001
- Grown to **77 members** from 49 in May
- 4 Working Groups (HW, SW, Benchmarking, Mktg)
- Quarterly meetings (next is Oct 9-11, Chicago)
- Single class of membership
NP Forum Board, Working Groups

Board Members:
Agere Systems
AMCC
IBM
Intel
LVL7
Motorola
Solidum

Board of Directors

Hardware WG
Chair: Hi/Fn

Software WG
Chair: IP Infusion

Benchmarking WG
Chair: Alcatel

Marketing WG
Chair: PowerX
The Network Processing Forum

The Network Processing Forum: Encouraging the growth and effective use of NP technology

www.npforum.org

- Specifications
- Benchmarking
- Interoperability
- Education
Agenda

- The Network Processing Forum

- **Working Group Updates**
  - Benchmarking
  - Hardware
  - Software
  - Technical Marketing & Education

- Summary and Call to Action
NP Forum Benchmarking Framework

System Level Benchmarks
(Multi-service Switches, Firewalls, etc)

Application Level Benchmarks
(IPV4 Forwarding, MPLS switching, Diffserv QoS, etc)

Task Level Benchmarks
(Longest Prefix Match, 5-tuple Classification, etc)
Benchmarking WG Status

Benchmarking Survey Complete

- Methodology validated
- Respondents want both **Application Level** and **Task Level** benchmarks (even split)

**Application level ranking:**
- IPv4 forwarding
- MPLS and L2 switching (tied)
- DiffServ QoS

**Task level ranking**
- LPM
- Classification (5-tuple)
Benchmark WG Status

- **Benchmarking Framework document approved**
  - Defines scope of benchmarks
  - Application level
    - Data plane focused implementations of common functions
    - Report App-level results with details of the reference design
  - Framework additions to include task-level benchmarks

- **Charter expansion**
  - Include switch fabric benchmarking
Benchmark WG Status

- **Network Processing Task Group**
  - IPv4 Forwarding Benchmark Draft Complete
    - Understand available headroom
    - Use of realistic scenarios for testing
    - Combined data plane/control plane tests
  - MPLS app-level spec work is starting

- **Fabric Task Group**
  - Framework document is in progress
  - Connector document is in progress
Hardware WG Status

• **Streaming Interface Task Group**
  - Family of datapath interfaces: Framer-NPE, NPE-NPE, NPE-Fabric
  - Defining a new interface for NPE-to-Fabric
    – Similar to OIF SPI-4.2, not an extension of CSIX-L1
  - Proposal for NPE-to-Fabric interface is due for straw ballot in Oct

• **Look-aside Interface Task Group**
  - Family of non-datapath coprocessor interfaces: LA1 and LA2
  - LA1:
    – Memory-style interface compatible with QDR™ and SigmaRAM SRAM
    – Supporting line rates from OC-48 to OC-192. Straw ballot in October
  - LA2:
    – Straw ballot in May 02
NP Forum Software Framework

Control & Management Plane

Applications

RIP, OSPF, etc.

CLI, SNMP, etc.

Other Applications

Services APIs (IPv4, MPLS, DiffServ, etc.)

Packet Handler API

Interface & Namespace APIs

High Level API Implementation

Functional API Implementation

Interconnect Messaging
(cPCI, Switch Fabric, Ethernet, etc.)

Network Processing Elements
Forwarding Plane
Software WG Status

Five Task Groups Formed

- SW Framework task group
  - Describing SW architectures and common terminology for devices utilizing Network Processing technology

- SW Foundations task group
  - Defining the infrastructure and SW conventions to be used by an application-specific API

- IPv4 API task group
  - Defining APIs to manage forwarding tables on NPs

- SW Interface task group
  - Defining APIs to configure physical and logical interfaces managed by NPs

- Packet Handler task group
  - Defining methods to send packets between the data and control planes
Technical Marketing & Education WG

- Generation and editing of all external communication and Marketing Messages
- Event Sponsorship in 2001
  - N+I/NPS (spring & Fall) - Network Processor Conference
  - NGN - Opticon
- Press & Analysts
  - Key Industry Analysts engaged in NP key announcements
- White Papers
  - Responsible for white paper generation
  - Position statements on other forums
- Industry OEM
  - Recruitment into NP Forum
  - NP Forum represent member interests with OEMs
The Network Processing Forum

The Network Processing Forum is On Track!

✓ Specifications
✓ Benchmarking
✓ Interoperability
✓ Education

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- Working Group Updates
  - Benchmarks
  - Hardware
  - Software
  - Technical Marketing & Education
- Summary and Call to Action
Network processing is enabling a revolutionary architecture for building networking systems.

NP Forum provides:

- **Specifications:** accelerate effective use of network processing
- **Solutions:** Forum for creating and validating solutions for customers using network processing
- **Awareness:** Forum for understanding and creating awareness of new opportunities using network processing
Join The Network Processing Forum

The Network Processing Forum Needs You!

- Next meeting – October 9-11, Chicago
- Get membership applications, news and other info at: NP Forum Sponsor Desk #4552

Or, visit www.npforum.org