SPEED SERIES
Turbo Appliances

- **Throughput for cost-effective routing and security software appliances**
- **Bare metal and virtual machine deployments on standard servers**
- **Scale linearly and on-demand with number of cores**
- **Outpace traditional hardware solutions in performance, flexibility and cost**

Product Overview

6WIND's Turbo Appliances are products in the 6WIND Speed Series family that provide high performance, ready-to-use software network appliances to be deployed in bare metal environments or as virtual machines.

6WIND Turbo Appliances leverage 6WINDGate™ technology, which is deployed in Tier 1 networks worldwide, to provide the packet processing performance of hardware networking solutions in software.

Within the Speed Series family, Turbo Router provides advanced networking functions, including routing and a stateful firewall. Turbo IPsec adds the support of IPsec VPNs with IKE.

6WIND's Turbo Appliances can be managed and configured through the Command Line Interface (CLI), the XML-based management system, or the Linux shell.

Turbo Router and Turbo IPsec are available for 1, 2 and 4 socket Intel x86-based servers.

Key Features

- High performance I/Os leveraging DPDK, with multi-vendor NIC support from Intel, Mellanox and Emulex
- High performance, fully-featured data plane networking
- High performance control plane
- CLI, XML or Linux-based management
- Bare metal and virtual environment deployment

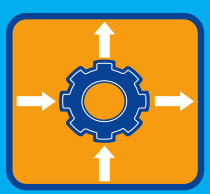
Feature Details

High performance I/Os leveraging DPDK, with multi-vendor NIC support:

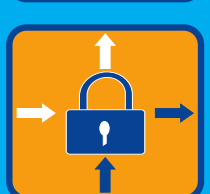
- Intel 10G 82598, 82599, X540, XL710
- Mellanox 10G/40G ConnectX®-3 EN and ConnectX®-3 Pro EN series
- Emulex 10G/40G OneConnect® OCe14000 family
- Intel 1G 82575, 82576, 82580, I210, I211, I350, I354

Performance

Test Platform: Quad Intel®Xeon® E7-4890 v2 @ 2.8GHz and 20x10G ports



Turbo Router



Turbo IPsec

IP Forwarding Performance:

- 9.6 Mpps per core; independent of packet size
- 200+ Gbps (128-byte packets) with 45% of system capacity still available
- Performance scales linearly with the number of cores

IPsec Performance:

- 5 Gbps per core
- 100+ Gbps with 45% of system capacity still available
- Performance scales linearly with the number of cores

Scalability:

- Thousands of Virtual Routing and Forwarding (VRF) instances
- Millions of routes
- 200,000 IPsec tunnels

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High performance data plane networking based on 6WINDGate technology:

Turbo Router

- L2: Ethernet Bridge, VLAN, Link Aggregation
- Forwarding (IPv4 and IPv6) and Virtual Routing and Forwarding
- Tunneling (IPinIP), GRE, VXLAN
- Stateful Filtering (IPv4 and IPv6)
- NAT

Turbo IPsec

- All features above
- IPv4 and IPv6 IPsec

High performance control plane:

Turbo Router

- Dynamic Routing: RIP, RIPng, OSPFv2, OSPFv3, BGP, BGP4+
- Static Monitoring of Routes, BFD
- Virtual Router Redundancy Protocol
- DHCPv4 client/relay/server
- DNS proxy

Turbo IPsec

- All features above
- Security IKEv1, IKEv2 with Radius support
- VPN monitoring

Management:

- Sessions secured using SSH with Radius support
- Industry-standard networking CLI
    - Help/completion
    - Configuration import/export
- Standard Linux commands and tools
    - iproute2, iptables, ping, tcpdump, traceroute, etc.
- Support for external management systems
    - Remote connection and XML-based API

Virtual environment:

- Virtio vNIC support enables benefits of virtual environments without the performance bottlenecks of a standard virtual switch (when combined with 6WIND Virtual Accelerator)
- Passthrough and SR-IOV support

6WIND Speed Series: Enabling NFV and Virtual Networking

Within the 6WIND Speed Series family, the Turbo Appliances can be easily integrated with 6WIND's Virtual Accelerator for accelerated virtual switching and networking infrastructure, and third party virtual functions, in the transition to Network Function Virtualization (NFV) and virtual networking environments. For example, by combining 6WIND's Virtual Accelerator and Turbo Router, customers can achieve over 5x performance of a standard Linux router VM running on top of Open vSwitch, while saving 75% of the system's processor resources to run additional VMs.