Product Overview
The Inventec D7264 is a high performance and low latency 100 GbE Spine switch designed for Data centers, large Enterprises as well as Service Provider network deployments. The switch can be deployed in large scale layer 2 and layer 3 networks. Virtualized, overlay and traditional Data center networks are fully supported. Today’s applications require networks to be Agile, Scalable, Flexible, Reliable, Programmable and Open.

The D7264 switch presents an open architecture with very high bandwidth and low latency design. It delivers 6.4 Tbps throughput in a compact 2 RU form factor. It offers 64 x100 GbE ports with phyless design.

The SDN switch supports line rate L2/L3 forwarding, programmability, network virtualization, QoS and zero touch provisioning.

The D7264 offers customers a compelling choice between a high performance Quad core x 86 or a very powerful Octal Core x 86 CPUs based on functional and operational requirements.

Support for Open Network Ecosystems
The Inventec D7264 is an open switch that supports multiple Network Operating Systems (NOS). Today the switch ships as bare metal but can be integrated with Inventec SONIC or a third party NOS. The switch is SDN enabled. Full ONIE support assures network operators of seamless integration into today’s open network environments.

High Performance, Scalable and Flexible
The Inventec D7264 is a high performance switch allowing wire rate of 5B packets per second with a low cut-through mode latency, 42 MB on-chip buffer memory and dynamic buffer management to prevent

Performance
• 5B Packets per Second
• 6.4 Terabits per Second Throughput
• Line Rate L2/L3 Forwarding
• 42.25 MB Packet Buffer
• 64 x100 G QSFP28

Control Plane
• CPU Options
  - 2.0 GHz x86 Octal-Core
    › 8GB to 16GB DDR4 NOTE1
  - 2.2 GHz x 86 Quad-Core
    › 8 GB DDR4
  - 1.6 GHz x86 Quad-Core
    › 8 GB DDR4 NOTE1
• 16 MB SPI Boot Flash with backup

Scalability
• 264 K MAC Entries
• 128 K IPv4 Host Routes
• 64 K IPv6 Host Routes
• 384 K IPv4/32 Routes
• 256 K IPv6/64 Routes
• 128 K IPv6/128 Routes
• 64 K Mroutes
• 32 K IPv6 Mroutes
• 4 K VLANs

High Availability
• 1 + 1 Hot-Swappable & Redundant Power Supply
• 2 x SPI Flash Supports Boot Recovery
• 3 + 1 Hot-Swappable & Redundant Fans
• 802.3ad Link Aggregation/LACP
  - 256 Ports/Channel
  - 1024 Groups per System

Flexible Storage
• 8-128 GB SSD for Mass Storage
• 1x USB Port for External Storage

Open, Standard and Programmable Network for All
catastrophic TCP traffic scenarios. The switch offers scalability by supporting choice of high end X 86 control processor with upto 32 GB of fast DDR4 memory. With a phyless design, the switch offers a low cut through latency.

The switch is flexible and supports different cabling option as per customer needs. AOC (Active Optical Cabling) and pluggable transceiver optics of different length of fiber connections are supported. The port use is also flexible. Each QSFP28 100GbE port can be used as 4x25GbE.

The programmable parser allows for reconfigurability in the field and flexibility to cover broad range of applications.

Agile, Programmable and supports Analytics
The switch supports programmable parser with Match Action units. This allows for new protocol support. The switch supports RESTful API interface. It allows for automatic provisioning and configuration with Puppet and Chef. Zero touch provisioning is also available. With Openstack orchestration tool integration, the switch enables automation, configuration and provisioning of L2 and L3 services in the data center. Switch also supports inband Analytics and Telemetry support.

Rich Feature Set
The switch has a rich L2/L3 feature set to address the increase in datacenter network deployments and distributed computing applications. For cloud networking, it includes large L2/L3 switching & forwarding capacity and supports numerous multi-pathing and tunneling technologies and datacenter features like ECMP, VXLAN and NVGRE. These overlays allow for network agility since the network operators do not have to modify the physical switch devices in case a user VM moves from one rack to another within the datacenter.

Available and Reliable Design
The switch is datacenter optimized with power and fan redundancy. It has a backup SPI boot flash that will activate for boot recovery if primary flash is corrupted. Also, with a Phy less switch, the overall MTBF increases with less number of hardware components.

Programmability and Software Support
- Inventec IN-OS
- ONIE
- Open Source Software Provided as RPM
- Chef and Puppet Client Integration
- Zero Touch Provisioning
- Bash Shell

Layer 2
- Dynamic ARP
- Jumbo Ethernet Frames (up to 9416 bytes)
- Storm Control
  - Broadcast, Unknown
  - Unicast/Multicast
- STP
  - Rapid Spanning Tree (802.1w)
  - Multiple Spanning Tree (802.1s)
- VLAN
  - IEEE 802.1Q tagged based
  - Q in Q VLAN (802.1ad)
  - Private VLAN
- LLDP (802.1ab)
- Link Aggregation
  - 802.3ad with LACP
  - Virtual Port Channel
- Snooping
  - IGMP v1/v2/v3, DHCP, DHCPv6, MLDv1/v2

Layer 3
- Address Resolution Protocol (ARP)
- IGMP v2/v3
- Internet Control Message Protocol (ICMP v4/v6)
- IPv6 (ICMP, OSPF v3, BGP, MLD)
- Open Shortest Path First (OSPF v2/v3)
- PIM-SM, PIM-SSM, PIM-BIDR, PIM-DM
- Policy Based Routing
- Static route
- Virtual Router Redundancy Protocol (VRRP)
- Border Gateway Protocol (BGP), Multi-protocol Extensions for BGP-4 (MP-BGP)
- Equal Cost Multipath (ECMP) (128-way)
Applications
• Datacenter Spine Switch
• Service Provider Switch
• Large Enterprise

QoS
• 802.1p, IP Precedence and DSCP Based Classifications
• Differentiated Services
• Rate limiting
• Strict Priority Queueing
• Traffic Shaping
• Up to 20 Queues per Port
• WRED

Network Management and Monitoring
• CLI
• Telnet/SSH
• TFTP/Xmodem/FTP
• IPv6 Management
• Port Mirroring
• sFlow
• USB Port
• 1G Management ports

Security
• AAA (Accounting and Authorization)
• ACL Logging and Mirroring
• DHCP Snooping
• DOS Protection
• Ingress/Egress L2/L3/L4 ACL
• IP Source Guard
• Management IP Filtering (SNMP/Telnet/SSH)
• Port MAC Locking
• Protected Ports
• Static MAC Filtering
• RADIUS
• TACACS+

Datacenter
• Priority-based Flow control (802.1Qbb)
• Enhanced Transmission Selection (802.1Qaz)
• Quantized Congestion Notification (802.1Qau)
• L2 in L3 Tunneling (VxLAN/L2GRE/NVGRE)
• Openflow Switch Specification support 1.3

In Summary
Overall performance, feature-richness, high availability, programmability, port-density, and line-rate switching capability makes the D7264 an excellent choice for next generation large and medium sized datacenters. This also makes the D7264 well suited for use as a general purpose switch in large Enterprises and Service Provider networks.
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>Form Factor</td>
<td>2 RU Fixed</td>
</tr>
<tr>
<td></td>
<td>Dimensions (D x H x W)</td>
<td>482.6 x 448 x 87.5 mm (19 x 17.6 x 3.4 inches)</td>
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<tr>
<td></td>
<td>Weight</td>
<td>15 kg (33.069 lbs)</td>
</tr>
<tr>
<td></td>
<td>Interfaces</td>
<td>64 x 100 GbE QSFP28</td>
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<tr>
<td></td>
<td>Power Supplies</td>
<td>2 (1+1) Redundant, hot swappable</td>
</tr>
<tr>
<td></td>
<td>Power Connector</td>
<td>IEC320-C13</td>
</tr>
<tr>
<td></td>
<td>Fans</td>
<td>4 (3+1) Hot-Swappable &amp; Redundant</td>
</tr>
<tr>
<td></td>
<td>System Memory</td>
<td>8 GB-16 GB</td>
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<tr>
<td></td>
<td>Flash Storage</td>
<td>8-128 GB</td>
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<td></td>
<td>External I/O</td>
<td>1 x USB</td>
</tr>
<tr>
<td></td>
<td>MGMT Port</td>
<td>1 x GE RJ-45</td>
</tr>
<tr>
<td></td>
<td>Console Port</td>
<td>1 x RJ-45 (RS-232)</td>
</tr>
<tr>
<td></td>
<td>Reset</td>
<td>1 x Reset Button (Front Panel Mounted)</td>
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<tr>
<td></td>
<td>Status LEDs</td>
<td>System Health Status/Fan Status</td>
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<tr>
<td></td>
<td>Activity LEDs</td>
<td>Link Activity/Status</td>
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<tr>
<td>Optics and Cables</td>
<td></td>
<td>See Section Supported Optics and Cables</td>
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<tr>
<td>Performance and Scalability</td>
<td>Forwarding</td>
<td>5 Bpps</td>
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<tr>
<td></td>
<td>Throughput</td>
<td>6.4 Tbps Bi-directional</td>
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<tr>
<td></td>
<td>Latency</td>
<td>450 ns</td>
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<tr>
<td></td>
<td>Layer 2</td>
<td>264 K Mac addresses, 4 K Vlans</td>
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<tr>
<td></td>
<td>Layer 3</td>
<td>128 K IPv4 host routes, 384 K IPv4/256K IPv6 routes</td>
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<tr>
<td></td>
<td>Redundancy</td>
<td>256 x 802.3ad groups; 128-way ECMP</td>
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<tr>
<td></td>
<td>Buffer</td>
<td>42.25 MB</td>
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<td></td>
<td>Memory</td>
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<td>Type</td>
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<tr>
<td></td>
<td>Input Voltage</td>
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<td>Input Frequency</td>
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<td>Typical/Max Power Draw</td>
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<td>Cooling</td>
<td>Front to Back Airflow</td>
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<td>Back to Front Airflow</td>
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<tr>
<td>Environmental</td>
<td>Operating Temperature</td>
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<td>Storage Temperature</td>
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<td>Relative Humidity</td>
<td>10°-90 %</td>
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<td>Altitude</td>
<td>0°-3000 m (0°-10,000 ft)</td>
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<td>Compliance</td>
<td>EMI</td>
<td>CISPR-22/FCC Part 15</td>
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<td>Safety</td>
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<td>RoHS</td>
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## Supported Optics & Cables

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<tr>
<th>Speed</th>
<th>P/N</th>
<th>Type</th>
<th>Description</th>
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<tbody>
<tr>
<td>100G</td>
<td>RTXM420-550</td>
<td>SR4</td>
<td>MPO type 70m OM3, 100m OM4</td>
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<td></td>
<td>RTXM420-551</td>
<td>eSR4</td>
<td>MPO type 210 m OM3, 300m OM4</td>
</tr>
<tr>
<td></td>
<td>FTLc95S1REPM</td>
<td>SR4</td>
<td>MPO type</td>
</tr>
<tr>
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<td>FTLc1151RDPL</td>
<td>LR4</td>
<td>LC type 10 km SMF</td>
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<td>FTLc1152RGPL</td>
<td>CWDM4</td>
<td>LC type 2 km SMF</td>
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<td>LQ210PR-Oxxx</td>
<td>PSM4</td>
<td>MPO type 2 km</td>
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<td>MMA1B00-C100D</td>
<td>SR4</td>
<td>MPO type 100 m</td>
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<td>NDAQGF-0001</td>
<td>Fanout</td>
<td>1m fanout 25 G 30 AWG</td>
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<td></td>
<td>L0HQF004-SD-R</td>
<td>Fanout</td>
<td>3m fanout 25 G 26 AWG</td>
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