Description

Algo-Logic Systems Gateware Defined Networking® (GDN) datacenter systems are comprised of a 40 Gbps or 100 Gbps Top of Rack (TOR) service mapping switch, multiple 10 Gbps or 40 Gbps Key/Value Store (KVS) servers, a Black Diamond Rackmount (BDR) power measurement server, and an Uninterruptable Power Supply (UPS) unit for battery-backed storage.

Datacenter Applications

- 40 and 100 Gbps Ethernet Top of Rack (ToR) service switching with load balancing.
- Key Value Store (KVS) with sub-µs latency
- N-Tuple packet classification and forwarding
- Access Control List (ACL) filtering for firewalls, routers, and flow switching.
- Network Functions Virtualization (NVF)
- In-memory database acceleration

Key Features and Use-cases

- 150 Million Packets Per Second (MSPS) of deterministic and jitter-free packet processing
- Sub microsecond Key/Value Store (KVS)
- Low power consumption rate of 0.12 µJ/message
- Flexible interface to any SDN controller
- Optional Black Diamond Rackmount (BDR) for measurement of power
- Optional UPS for battery-backed KVS

The TOR switch is equipped with Altera Stratix V 100G GX board to switch and load balance east/west data center traffic to multiple north/south KVS servers. Each 40 Gbps QSFP+ switch port services up to 7 10 Gbps SFP+ ports while each 100 Gbps port serves up to 11 SFP+ ports and/or 2 QSFP+ ports. All switching and searching is performed in FPGA hardware.
GDN® Rack Solutions for Scalable 40G/100GE+ Datacenter Services

GDN-Switch/GDN-Search System Specifications

<table>
<thead>
<tr>
<th>Top of Rack GDN Switch</th>
<th>40 Gbps or 100 Gbps Input Port, each supporting up to 11 SFP+ 10 Gbps ports and/or 2 QSFP+ 40 Gbps ports.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Value Store</td>
<td>Sub-microsecond Key Value Store supporting up to 4 SFP+ 10 Gbps ports per FPGA card</td>
</tr>
<tr>
<td>Linux Control System</td>
<td>Intel i7 4770k, 3.4 GHz with CentOS v6.4</td>
</tr>
<tr>
<td>FPGA cards Supported</td>
<td>Stratix V Nallatech P385, DE5Net, and other FPGA cards</td>
</tr>
<tr>
<td>DPDK support</td>
<td>Intel 82598 NIC</td>
</tr>
<tr>
<td>Power Measurement</td>
<td>Black Diamond (BD) for detailed power measurements via 16 channels</td>
</tr>
<tr>
<td>AC/DC Power System</td>
<td>120/240 V AC input with internal DC power system</td>
</tr>
</tbody>
</table>

Datacenter Deployment Example

The GDN Switch load balances traffic from 40G/100G TOR to multiple compute and storage servers in each datacenter rack. Key-Value Search performed with 10G/40G FPGA boards.

![Datacenter Deployment Example](image)

Ordering Codes

AL-Datacenter Mobile Rack: (GDN-Switch ports) (GDN-Search ports) (GDN-Search platform) (Options):

- Number of 100G and 40G ports for GDN-Switch
- GDN-Switch parameters (100G, 40G, 10G)
- Number of 40G and 10GE Ports for GDN-Search
- GDN-Search Platforms: DE5Net or Nallatech P385 card with Stratix V A7
- Option 1: Traffic generation server with 40G NIC
- Option 2: BDR DC power measurement server

www.algo-logic.com
Solutions@Algo-Logic.com
+1 (408) 707-3740