

FUTUREWEI


**Qlogic® QL45212 25Gbe RoCE NIC compatibility test with
Huawei CloudEngine CE6865-48S8CQ-EI switch**

Test Report

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Contents

Contents

- 1 Executive Summary.....4**
- 2 Test Environment.....5**
 - 2.1 Hardware and Software Configurations 5
 - 2.1.1 Configuration of involved hardware components 5
 - 2.1.2 Configuration of other hardware 5
 - Test Cases6**
 - 2.2 QL45212 Compatibility with CloudEngine CE6865-48S8CQ 6
 - 2.2.1 Testing QL45212 connecting to QL45212 6
 - 2.2.2 QL45212 as RDMA adaptor in ESXi..... 6
 - 2.2.3 QL45212 connecting to CloudEngine..... 8
- 3 Results.....9**
 - Conclusion 9

1

Executive Summary

Huawei® CloudEngine CE6865-48S8CQ-EI is a popular component in Huawei OceanStor based NoF+ storage solutions. It was tested to work well with Mellanox® CX-4/5 based RoCE NICs for host, and Huawei Hi1822 chipset based I/O module on OceanStor arrays.

This test report evaluated compatibility of host side adaptors based on Qlogic® QL45212 chipset. The conclusion is, this chipset is not working with CloudEngine CE6865-48S8CQ-EI switch. We should recommend avoiding HBAs based on this chipset when using CloudEngine CE6865-48S8CQ-EI.

2 Test Environment

2.1 Hardware and Software Configurations

2.1.1 Configuration of involved hardware components

Table 2-1 OceanStor Dorado configuration

Name	Description	Quantity
OceanStor Dorado	Huawei OceanStor Dorado 5000 V6 with two controllers	1
25 Gbit/s RoCE I/O module	4-port FE 25 Gbit/s RoCE I/O module	2
CloudEngine CE6865-48S8CQ-EI	48 port 25Gbit/s RoCE switch	1
QLOGIC QL45212HLCU HBA	Dual port 25Gbe RoCE NIC	2

2.1.2 Configuration of other hardware

Table 2-2 Configuration of other hardware

Name	Description	Quantity	Function
Linux server	x86 server <ul style="list-style-type: none">CPU: 8 xMemory: 8 GBMain storage disk: 60 Gb	1	

Test Cases

2.2 QL45212 Compatibility with CloudEngine CE6865-48S8CQ

2.2.1 Testing QL45212 connecting to QL45212

Connecting one QL45212 port to another QL45212 port shows properly auto-negotiated 25Gb speed, and connectivity test passed without issue.

2.2.2 QL45212 as RDMA adaptor in ESXi

Key steps and results:

Install the hardware and check status of the adaptor

10.124.48.8 ACTIONS

Summary Monitor **Configure** Permissions VMs Resource Pools Datastores Networks Updates

Storage

Storage Adapters

Storage Devices

Host Cache Configuration

Protocol Endpoints

I/O Filters

Networking

Virtual switches

VMkernel adapters

Physical adapters

RDMA adapters

TCP/IP configuration

RDMA adapters

Name	Driver	State	Paired Uplink	RoCE v1	RoCE v2	iWARP
vmrdma0	qedrntv	Active	vmnic4	Enabled	Enabled	Disabled
vmrdma1	qedrntv	Down	vmnic5	Enabled	Enabled	Disabled

RDMA Device: vmrdma0

Properties

Bound VMkernel Adapters

DescriptionQLLogic FastLinQ QL45xxx RDMA Interface

Create vmkernel port binding and new vswitch, add IP

10.124.48.8 ACTIONS

Summary Monitor **Configure** Permissions VMs Resource Pools Datastores Networks Updates

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VMkernel adapters

ADD NETWORKING... REFRESH

	Device	Network Label	Switch	IP Address
⋮ >>	vmk0	Management Network	vSwitch0	10.124.48.8
⋮ >>	vmk1	ROCE	vSwitch1	10.0.25.101

Under host storage section, add new storage adaptor:

10.124.48.8

Summary Monitor

Storage

Storage Adapter

Storage Devices

Host Cache Conf

Protocol Endpoint

I/O Filters

Networking

Virtual switches

VMkernel adapter

Physical adapters

RDMA adapters

TCP/IP configurat

Virtual Machines

VM Startup/Shut

Agent VM Setting

Default VM Comp

Swap File Locati

Status

Completed

VSPHERE LOCAL\Administrator

1ms

04/14/2022, 4:08:42 AM

04/14/2022, 4:08:42 AM

Add Software Adapter | 10.124.48.8

☐ Add software iSCSI adapter

A new software iSCSI adapter will be added to the list. After it has been added, select the adapter and use the Adapter Details section to complete the configuration.

☒ Add software NVMe over RDMA adapter

Enable software NVMe adapter on the selected RDMA device.

RDMA device: vmrdmat/QLLogic FastLinQ QL45xxx RDMA Interface

☐ Add Software FCoE Adapter

Discover software FCoE adapters associated with the following physical network adapter.

Physical Network Adapter: vmnic0

VLAN ID: 0 Range: 0 - 4094

Priority Class: 3 Range: 0 - 7

Controller MAC Address: cc:48:3a:0c:10:35

CANCEL OK

Ready to add NoF storage in the new adaptor's controller tab:

10.124.48.8

Summary Monitor Configure Permissions VMs Resource Pools Datastores Networks Updates

Storage

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Virtual switches

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TCP/IP configurat

Virtual Machines

VM Startup/Shut

Agent VM Setting

Default VM Comp

Swap File Locati

Status

Details

Initiator

Queued F

Start Time

Com

Add controller | vmhba64

Automatically Manually

Subsystem NQN

NVMe Qualified Name (NQN) is limited to 223 characters in length

IP

Enter IPv4 / IPv6 address

Port Number

Range more from 0

Admin Queue Size

Maximum size 4096

Keepalive Timeout

In milliseconds

CANCEL OK

2.2.3 QL45212 connecting to CloudEngine

Key observations:

- When connecting Qlogic HBA port to the switch, on the switch side, port shows live:

```
[~HUAWEI-25GE2/0/27]di th int
25GE2/0/27 current state : DOWN (ifindex: 100)
Line protocol current state : DOWN
Description:
Switch Port, PVID : 1, TPID : 8100(Hex), The Maximum Frame Length is 9216
Internet protocol processing : disabled
IP Sending Frames' Format is PKTFMT_ETHNT_2, Hardware address is f033-e552-f8c1
Port Mode: COMMON COPPER, Port Split/Aggregate: -
Speed: AUTO, Loopback: NONE
Duplex: FULL, Negotiation: DISABLE
Input Flow-control: DISABLE, Output Flow-control: DISABLE
Mdi: AUTO, Fec: NONE
Last physical up time : -
Last physical down time : 2022-04-08 01:33:55
Current system time: 2022-04-28 19:31:14
Statistics last cleared:never
  Last 300 seconds input rate: 0 bits/sec, 0 packets/sec
  Last 300 seconds output rate: 0 bits/sec, 0 packets/sec
  Input peak rate 0 bits/sec, Record time: -
  Output peak rate 0 bits/sec, Record time: -
  Input : 0 bytes, 0 packets
  Output: 0 bytes, 0 packets
  Input:
  Unicast: 0 Multicast: 0
```

- On the Qlogic NIC port, light is off and shows no activity.
- Same cable works fine for connecting two Qlogic ports.
- Same cable works fine for connecting CX-4 HBA port to CloudEngine switch port.

It appears that layer 1 negotiation between Qlogic QL45212 and CloudEngine CE6865-48S8CQ-EI is not working. Further investigation require engineering support from both vendors, and is not covered by this report.

3 Results

Conclusion

There are compatibility issues between Qlogic QL45212 chipset based HBA with CloudEngine CE6865-48S8CQ-EI switch. We should recommend avoiding HBAs based on this chipset when using CloudEngine CE6865-48S8CQ-EI.