Inspur Leads Convergence for Open Data Center Projects

Dolly Wu, General Manager USA
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Inspur Today

- Inspur Business has expanded to more than **104** countries and regions, and growing rapidly.
- Inspur now owns **8 R&D Centers**, **5 Manufacturing Centers**, **26 Branch Offices**, **12000 Partners** worldwide. Annual manufacturing capacity: ~1,000,000+ servers.

**Staff : 26200**

- **R&D** 52%
- **Mkt&Sales** 33%
- **Mgmt and Admin** 15%

**4 Business Groups**

- Cloud Data Center
- Cloud Service & Big Data
- Software & Integration
- Enterprise Software

**Inspur HQ @ Jinan, Shandong Province**

**9.8 Billion USD Revenue**

(FY’15 ended March 31, 2016)

- Inspur Software (600756) Shanghai
- Inspur International (596.HK) Hong Kong
- Inspur Information (000977) Shenzhen
- Inspur Huaguang (838157) NEEQ
Gartner Report: Inspur is the World’s Fastest Growing Server Vendor for the first three quarters of 2016

12/08/2016


**FASTEST GROWING**

Server Vendor in the World

(Gartner Q1-Q3, 2016)

Worldwide: Server Vendor Shipment Estimates, 2Q16 (Units)

<table>
<thead>
<tr>
<th>Company</th>
<th>2Q16 Shipments</th>
<th>2Q16 Market Share (%)</th>
<th>2Q15 Shipments</th>
<th>2Q15 Market Share (%)</th>
<th>2Q18-2Q16 Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell</td>
<td>529,135</td>
<td>19.2</td>
<td>485,745</td>
<td>18.0</td>
<td>8.5</td>
</tr>
<tr>
<td>HPE</td>
<td>474,803</td>
<td>17.2</td>
<td>583,790</td>
<td>21.6</td>
<td>-18.7</td>
</tr>
<tr>
<td>Lenovo</td>
<td>235,267</td>
<td>8.5</td>
<td>222,206</td>
<td>8.2</td>
<td>5.9</td>
</tr>
<tr>
<td>Huawei</td>
<td>139,066</td>
<td>5.1</td>
<td>122,965</td>
<td>4.6</td>
<td>14.1</td>
</tr>
<tr>
<td><strong>Inspur</strong></td>
<td>120,417</td>
<td>4.4</td>
<td>62,032</td>
<td>3.0</td>
<td><strong>46.6</strong></td>
</tr>
<tr>
<td>Others</td>
<td>1,256,054</td>
<td>45.6</td>
<td>1,207,005</td>
<td>44.6</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,757,632</strong></td>
<td><strong>100.0</strong></td>
<td><strong>2,703,344</strong></td>
<td><strong>100.0</strong></td>
<td><strong>2.0</strong></td>
</tr>
</tbody>
</table>

Source: Gartner (September 2016)
Open Data Center Projects

**Inspur is a Key Member and Participates in All Open Data Centers Projects**

April 2011, Facebook started the Open Compute Project (OCP) in USA.
2014, Microsoft contributed Open Cloud Server (OCS).

October 2011, Baidu, Alibaba and Tencent launched the “Scorpio Project” with support from Intel and Inspur. In 2014, the Scorpio Alliance is re-established as the Open Data Center Committee (ODCC).

September 2014, Intel released Intel® Rack Scale Architecture v1.0

August 6, 2013, collaboration around Power Architecture products initiated by IBM

**New Projects**

July 19, 2016  LinkedIn announced a new open standard that can fit any 19” Rack environment for server, storage, and networking.

October 2016.  Microsoft announced Project Olympus to provide early access to Microsoft next generation cloud hardware designs for OCP members to contribute additional building blocks.
Inspur is the #1 Vendor for ODCC Deployments

Inspur ODCC Rackscale SR Captures over 60% of Hyperscale Deployments in China for Tier1 DCs

Inspur ODCC Rackscale SR is deployed into many different industry segments.

- 85% of Baidu rack server products
- 60% of Alibaba rack server products
- 40% of 12306 railway system Phase II Project
- 60% of Qihoo’s rack server products are Inspur Rackscale SR

Core Values

- Quick deployment: 10,000+ nodes/day (versus traditional server deployment of only 300 nodes/day)
- Deployment Density improves 13.8%
- Energy Consumption Reduces 15%
- TCO reduces over 12%
- 50% Lower failure rate
Inspur Joins OCP as a Platinum Member

**Inspur’s Goal for Joining OCP:**

- Innovate, design and contribute building blocks to OCP Community.
- Develop products that help increase OCP adoption for Cloud Datacenters in different industry segments (leveraging successful experience from ODCC deployments).
- Support a broad spectrum of workloads, applications, emerging cloud services.
- Enable easy scaling and deployment across global datacenter regions.
- Develop server building blocks that bridge the gap between different Open Data Center standards.
Inspur OCP Motherboard for Tioga Pass Chassis in Open Rack v2

◆ OCP ORv2 Spec

- **Size** (mm): 2210*600*1067
- **Height**: 42OU, 1OU = 48mm
- **Power Space**: 2x Power Zones. 2x Power shelves, 3OU for each power shelf. Each power shelf has 2+1x 3.3KW PSUs + 3x BBU and provides 6.3KW continuous max loading per power zone. Or 3+3x 2.1KW.
- **Server Space**: 32OU total, 16OU for each power zone for servers/storage
- **Switch and Management**: 30U

- Inspur OCP motherboard is a great addition to the portfolio for Tioga Pass chassis in ORv2.
- Compliant with Tioga Pass chassis, but not the exact same spec/design as Tioga Pass MB.
- Supports both 1OU and 2OU chassis for different target use cases.
- Supports 2xM.2 (instead of 1xM.2 for Tioga Pass).
- Uses Oculink connector instead of Airmax connector.
Inspur OCP Server Products for ORv2

2OU 3*Node - 4 SKUs

2OU 3*Node
- 2*Skylake CPU
- Support FPGA
- Up to 3*Expansion Slots

SKU#1
1x3.5"HDD + 1x M.2
Expansion Slots:
- 1x FHHL(x16) : CPU0
- 1x FHHL(x16) : CPU0
MP: Sep/17

SKU#2
2x2.5"HDD or NVMe
2x M.2
Expansion Slots:
- 1x FHFL(x16) : CPU0
- 1x FHHL(x16) : CPU1
MP: Sep/17

SKU#3
4x2.5"HDD or NVMe
1x M.2
Expansion Slots:
- 3x HHHL(x8) : CPU0
MP: TBD

SKU#4
6xSSD
1x M.2
Expansion Slots:
- 2x HHHL(x16) : CPU0
MP: TBD
Inspur OCP Server Products for ORv2

1OU 3*Node

Each node:
- 2*Skylake CPU
- Storage: 2x M.2
- Expansion Slot:
  - 1x FHHL(x16):
    - CPU0
- Support FPGA

MP: Sep/17
Inspur OCP Server Products for ORv2

**3OU JBOD**

- 64x 3.5”/2.5” hot swap drive bays
- Four slots, each slot supports 16x hot swap bays
- Size: 800x93.5x537mm
2U 4-Socket Purley Skylake

2U Node
4*Skylake CPU
1x 3.5” + 2x M.2
Expansion Slot:
• 4x HHHL(x8)
• 2x HHFL(x8)

MP: Sep/17

Support 6*FHHL
Support 4*FHHL + 2*FHFL
Total Solution for Open Datacenter Projects

Digital Economy is driving the need for:
- Fast deployment of Cloud Datacenters
- Fast scaling globally
- Optimize capacity, performance, power efficiency to workloads and applications
- Reduce TCO: Limit escalating DC costs and space

Advanced Datacenter:
- Higher rack density;
- More efficient;
- Better overall TCO;

AI technology:
- More intensive computing
- Mass data storage

Inspur InCloud OS
Software Defined Compute, Storage, Network
Inspur InCloudRack for Intel® RSD

IncloudRack with Intel® RSD Enables Software Defined Data Center Solution

- All infrastructure delivered as a service
- Hyper-scalable to keep up with business demands
- Resources automatically tuned to application workloads

InCloud OS

Cloud/Data Center Manager

POD Manager API
- Discovery
- Allocation
- Composition
- Management

POD Manager

RSA Manageability API

RMM (Rack level data for power and thermal zones)

PSME (Pooled System Management Engine)

Node BMC

UNE BMC

Intel® RSD
Inspur/Liqid CI at Rackscale

Inspur RackScale SR and Liqid CI deliver on-demand Composable Infrastructure for Cloud Datacenters

Liqid Command Center
CI management software

PCle Fabric Switch
Electrically interconnects pools of disaggregated system elements

Physical Bare Metal
Compute, storage, networking

Liqid Formation of Serviceable Pools
Pools of compute
Pools of storage
Pools of networking
Case Study: Alibaba

Inspur is the No.1 Server supplier for Alibaba

Alibaba eCommerce Platform is Running on Inspur ODC Rack Scale SR Series

- “Single Date” 2016, turnover for a single day exceeded $17.8B USD (compared to $14.6B USD in 2015)
- Peak of system transaction reached 175,000 orders per second
- Peak for payment reached 120,000 transactions per second (compared to 89,000 transactions in 2015)

Alibaba, market cap of ~$200B USD. Traded on NYSE, symbol BABA.

Rack Scale SR = Reliability/Easy Management/Quick Deployment/High Efficiency
Inspur is the largest server provider for Baidu. Inspur and Baidu have in-depth cooperation in product design, technology and supply chain, including Hyperscale Rack-Level Server, Cold Storage Servers, FPGA and supply chain system...

- Inspur supplies over 80% of Baidu’s hyperscale rack-level servers and set a new record in 2016 of deploying 10,000 nodes per day in Baidu datacenters. In comparison, conventional rackmount servers deployment is around 300~500 servers per day.
- Inspur is working with Baidu on reducing power loss using new 48V architecture design to support Deep Learning and AI projects (The Brain Project and Autonomous Vehicle) which use power hungry GPU servers and high density HPC clusters.
Why Inspur

Inspur Systems Inc.
Dolly Wu
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Tier 1 Quality and Reliability
OEM/ODM Design Capability and Volume Manufacturing
White Box Flexibility and Competitiveness
Total Solutions Capability
Global Reach and Technology Leadership

Thank You
www.inspursystems.com