



Innovation to Inspire

Inspur Leads Convergence for Open Data Center Projects

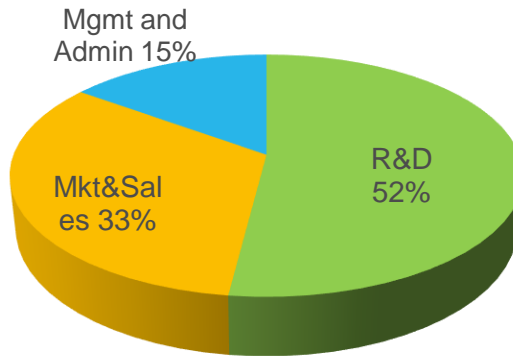
Dolly Wu, General Manager USA
March 8th, 2017

Inspur Today



Inspur HQ @ Jinan, Shandong Province

Staff : 26200



9.8 Billion USD
Revenue

(FY'15 ended March 31, 2016)

4 Business Groups

Cloud Data
Center

Cloud Service &
Big Data

Software &
Integration

Enterprise
Software

Inspur Software (600756) Shanghai
Inspur International (596.HK) Hong Kong
Inspur Information (000977) Shenzhen
Inspur Huaguang (838157) NEEQ

- 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

Gartner Report: Inspur is the World's Fastest Growing Server Vendor for the first three quarters of 2016

12/08/2016

<http://finance.yahoo.com/news/gartner-report-reveals-inspur-worlds-110000299.html>



FASTEST GROWING

Server Vendor in the World

(Gartner Q1~Q3, 2016)

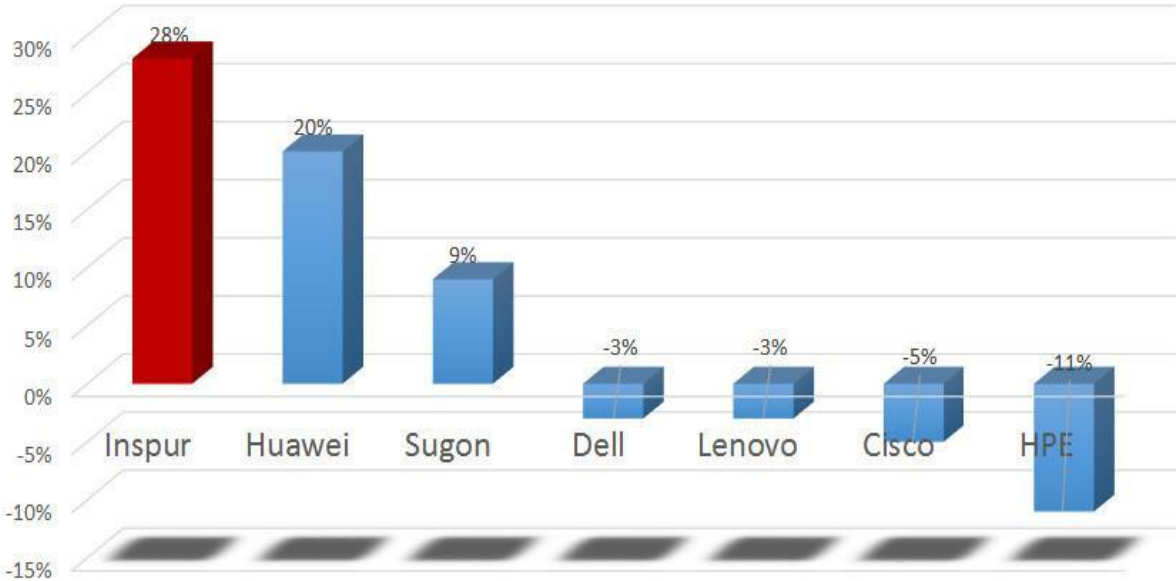
Worldwide: Server Vendor Shipment Estimates, 2Q16 (Units)

Company	2Q16 Shipments	2Q16 Market Share (%)	2Q15 Shipments	2Q15 Market Share (%)	2Q16-2Q15 Growth (%)
Dell	529,135	19.2	485,745	18.0	8.9
HPE	474,803	17.2	583,790	21.6	-18.7
Lenovo	235,267	8.5	222,206	8.2	5.9
Huawei	139,866	5.1	122,565	4.5	14.1
Inspur	120,417	4.4	82,032	3.0	46.8
Others	1,258,045	45.6	1,207,005	44.6	4.2
Total	2,757,532	100.0	2,703,344	100.0	2.0

Source: Gartner (September 2016)

Gartner.		China	Global
1	inspur 浪潮	1	Hewlett Packard Enterprise
2	lenovo 联想	2	DELL
3	HUAWEI	3	lenovo 联想
4	DELL	4	HUAWEI
5	Sugon 中科曙光	5	inspur 浪潮

Worldwide: Server Vendor Shipment Growth, 2016 1Q-3Q



Source: Gartner (November 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.

Project
Olympus/OCP

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

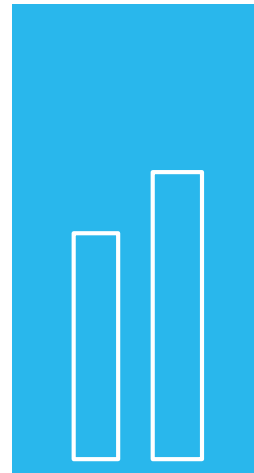
Inspur ODCC Rackscale SR Captures over 60% of Hyperscale Deployments in China for Tier1 DCs

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.

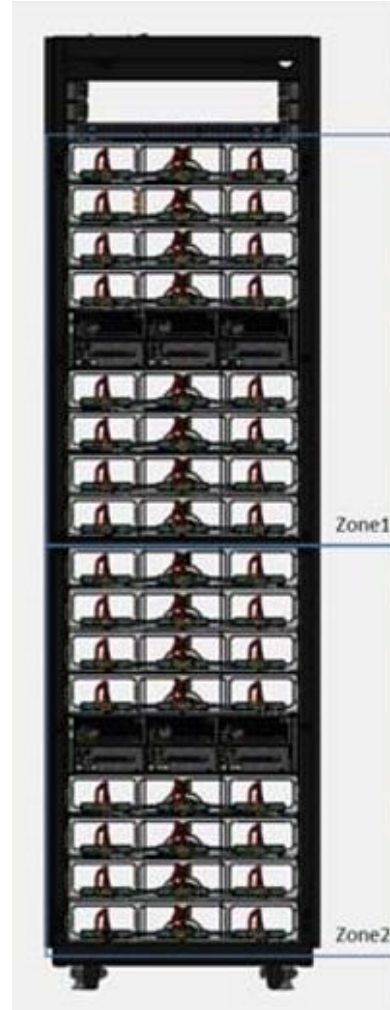


Inspur OCP Motherboard for Tioga Pass Chassis in Open Rack v2



◆ OCP ORv2 Spec

- **Size** (mm): 2210*600*1067
- **Height**: 420U, 10U = 48mm
- **Power Space**: 2x Power Zones. 2x Power shelves, 30U 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**: 320U total, 160U for each power zone for servers/storage
- **Switch and Management**: 30U

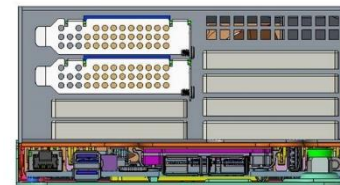
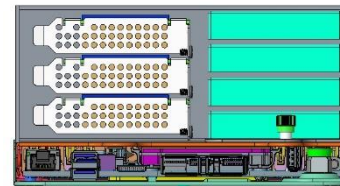
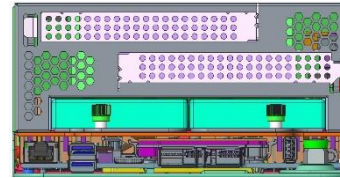
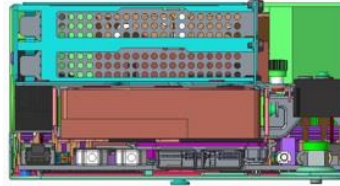
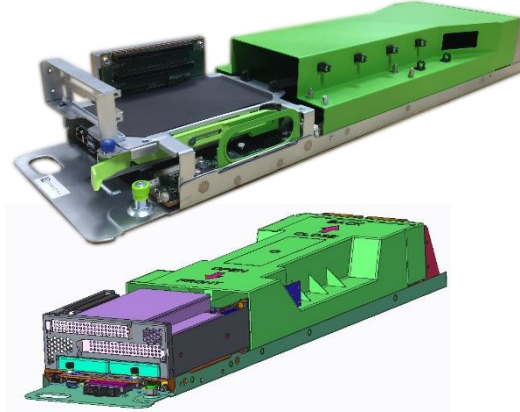


Inspur OCP MB

- 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 10U and 20U 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

20U 3*Node- 4 SKUs



20U 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) : CPU1

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

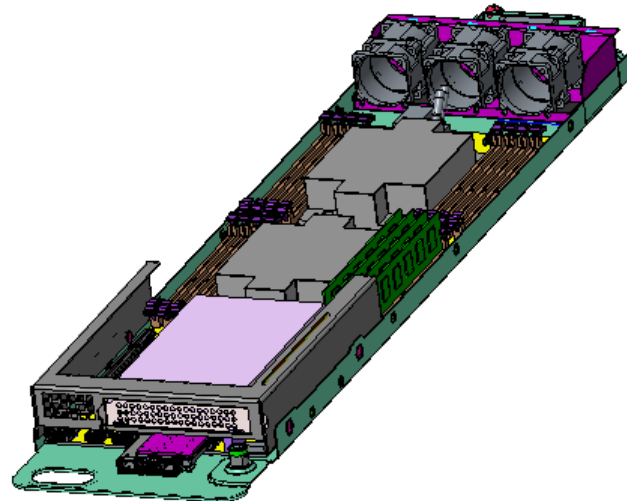
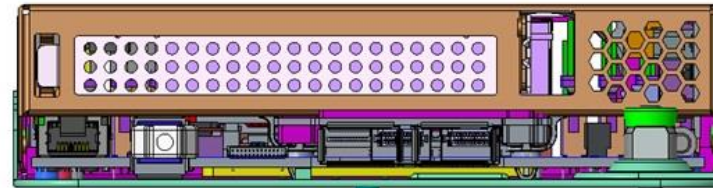
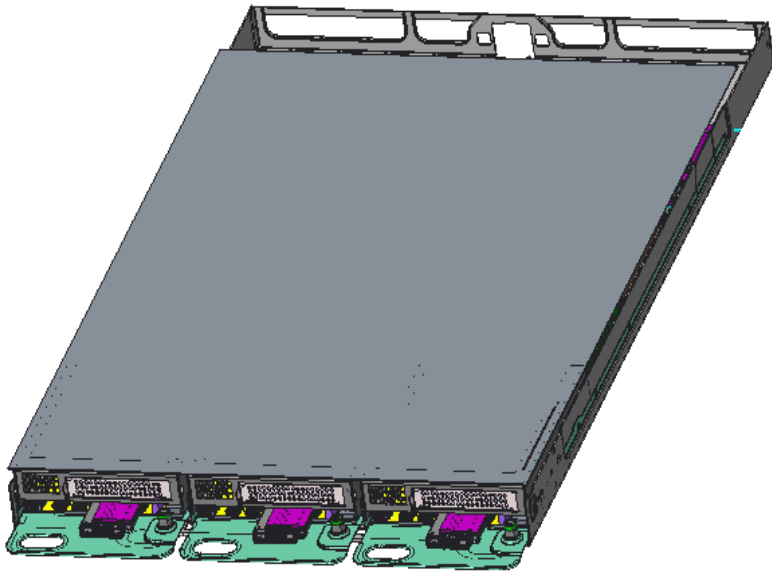
Expansion Slots:

- 2x HHHL(x16) : CPU0

MP: TBD

Inspur OCP Server Products for ORv2

10U 3*Node



10U 3*Node

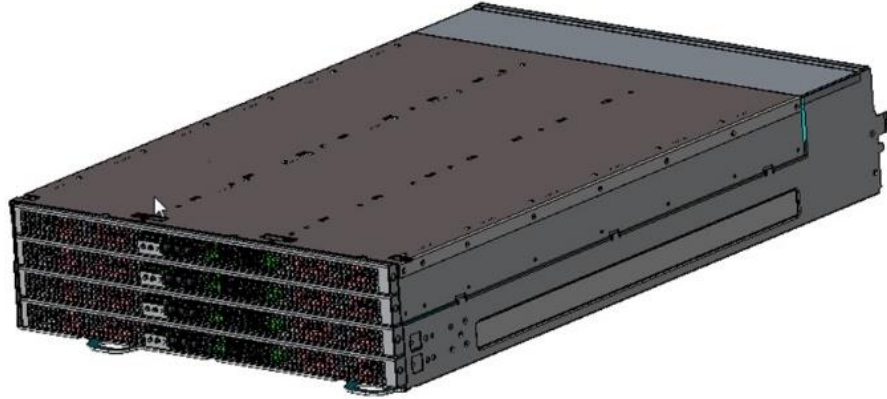
each node:

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

MP: Sep/17

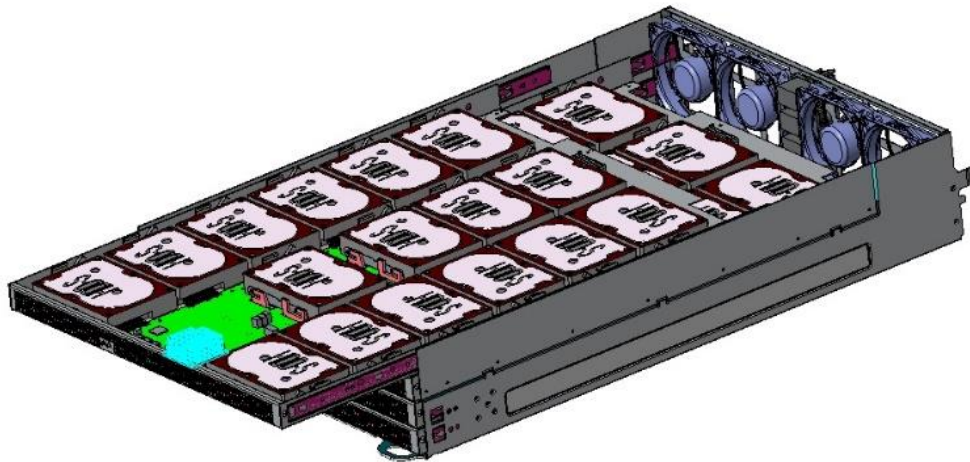
Inspur OCP Server Products for ORv2

30U JBOD



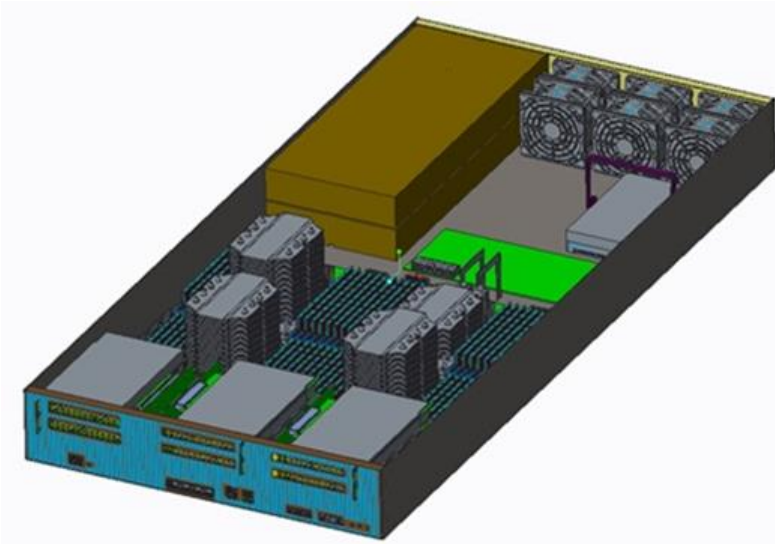
30U JBOD

- 64x 3.5"/2.5" hot swap drive bays
- Four slots, each slot supports 16x hot swap bays
- Size:800x93.5x537mm



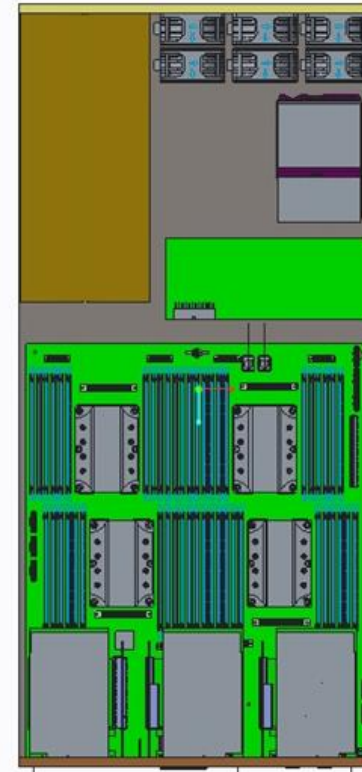
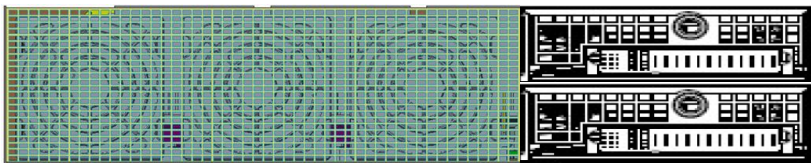
Inspur OCS Products

2U 4-Socket Purley Skylake

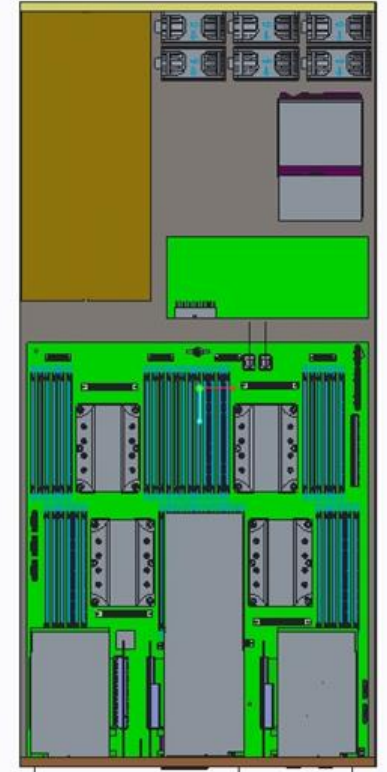


2U Node
4*Skylake CPU
1x 3.5" + 2x M.2
Expansion Slot:
• 4x HHHL(x8)
• 2x HHFL(x8)

MP: Sep/17



Support 6*FHHL

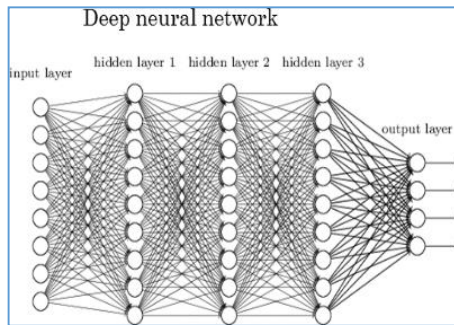


Support 4*FHHL + 2*FHFL

Total Solution for Open Datacenter Projects

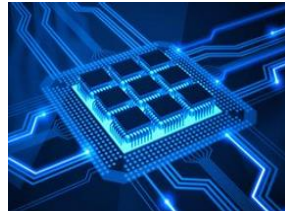
Digital Economy is driving the need for:

- 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



AI technology:

- More intensive computing
- Mass data storage



inspur



Advanced Datacenter:

- Higher rack density;
- More efficient;
- Better overall TCO;



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

inspur
InCloud OS



openstack™
CLOUD SOFTWARE

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)

Rack Level

PSME (Pooled System Management Engine)

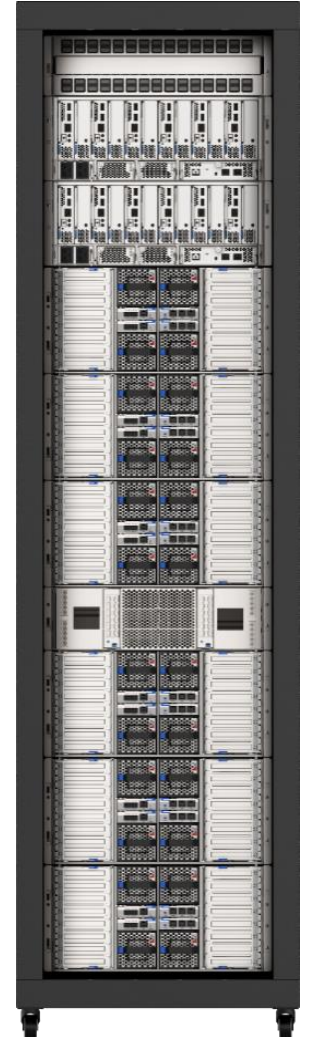
Node Tray Level

Node BMC

UNE BMC

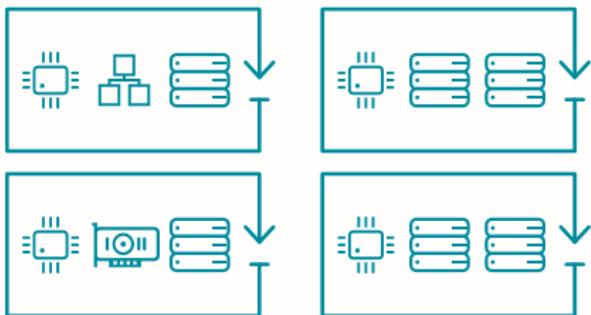
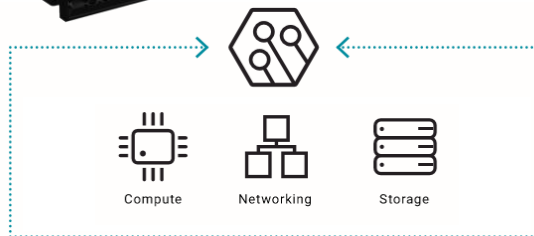
Host Level

Intel®
RSD



Inspur/Liquid CI at Rackscale

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



Liquid Command Center

CI management software

PCIe Fabric Switch

Electrically interconnects pools of disaggregated system elements

Physical Bare Metal

Compute, storage, networking

Liquid Formation of Serviceable Pools

Pools of compute

Pools of storage

Pools of networking



Case Study: Alibaba



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



Ranking of largest listed global Internet companies

Apple
Google
Alibaba
Facebook
Amazon
Tencent
eBay
Baidu
Priceline.com
Salesforce.com
JD.com
Yahoo!
Netflix
LinkedIn
Twitter

- ▶ 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)

Rack Scale SR = Reliability/Easy Management/Quick Deployment/High Efficiency

Case Study: Baidu - Rapid Cloud Datacenter Deployments



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...



Largest Chinese search engine and Chinese website provider, Baidu has a search share of more than 80% in China.



- 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
GM, Datacenter/Cloud USA
dollywu@inspur.com

Tier1 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