



Cloud Computing and Datacenter Solution

Every year, the operation maintenance cost of the traditional datacenter remains so high, such as high amount of power consumption, management, human resources, datacenter space cost, and so forth, that it has raised the enterprise a huge challenge of the construction and development of datacenters as well as hastened the birth of cloud computing techniques.

Satisfying the thirst of high C/P rate solutions from China datacenters for their rapid growth in cloud business, emphasizing high performance, great power efficiency, safety, and open standards, Inventec works with end users proposing A80 Rack Solution, which submits consistent standards for Datacenter hardware design norm in order to realize the ideal where datacenters are with low cost and high expandable flexibility. Through the centralized management of power supply and the reduction of energy consumption, the electricity cost of enterprise is able to be lowered in a large scale; with high density design, which means the computing performance of per unit space is multiplied enhanced, a bottleneck in terms of the limited



Efficiency



Best Cost



Performance



Safety



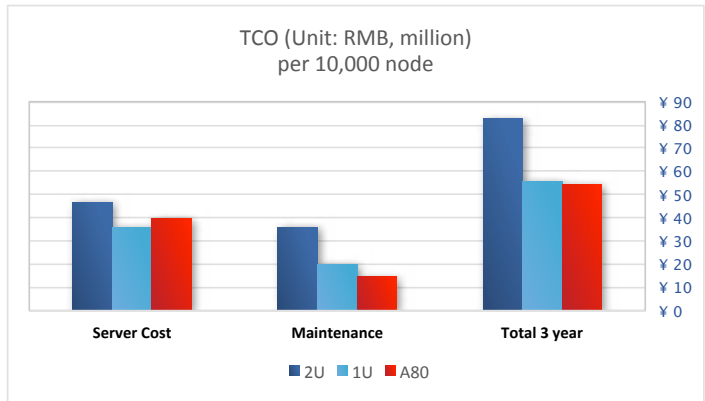
Open Standards

One single rack solution could solve all computing demand, supporting direct plugging and ready to use.



datacenter space for enterprise business expansion is avoided; in the specifications of A80 2.0, even nodes are diversified, which enables flexible collocation and adaptation to the Cloud Computing Eco-environment in accordance with functional requirements and caters to multiple demands based on the business growth. Furthermore, by centralized management, proceeding the real-time management of a large scale of data by the unified interface, monitoring the operation status of datacenter facilities, optimizing the resources, locating the nodes and instantly removing the failures, as well as effectively cutting down the cost caused by the traditional manpower and operation can all be done. Finally, with rapid delivery, by prefabricated datacenter module, the solutions are promptly and directly delivered to clients after test completion, and the support of direct plugging of power and bandwidth eliminates the complicated installation and testing procedures, which makes the delivery efficiency of the process involved in informatization construction dramatically upgraded!

A30G3 Rack Solution



A standard datacenter of 10000 computing nodes requires 250 pieces of A80 2.0 racks, or 250 of racks of common 1U systems, or 500 of racks of common 2U. During a 3-year life cycle, TCO of A80, compared to traditional servers, could save 35%!

P.S.1 30 people of workforce a day can deliver 70 pieces of A80 2.0 rack (2100 server nodes in total), which is 7 times of the delivery of 300 traditional server nodes if spending the same working hours.

P.S.2 Only extra 9% server cost compared to traditional 1U server, A80 2.0 rack gets 50% storage increase.

	A80 2.0	Traditional Server
Fan Qty per U	1.2	4 (1U); or 2 (2U)
Fan Maintenance	Hot-pluggable	Non hot-pluggable
Fan Redundancy	N+2	Unsupported
High-temp. Cooling	Supported	Partial-supported
Power Supply Qty per U	0.15 – 0.25	2(1U); or 1 (2U)
Power Redundancy	N+1/N+N	N+1
Power Efficiency	94%	92-94%
Power Cord	Busbar	Cable
Power Intelligent Control	Supported	Unsupported

Difference of infrastructure between A80 2.0 and traditional standard servers in a rack.

Best TCO Rack Solution for Datacenter

According to user testing data, A80 2.0 Rack System in a natural cooling datacenter environment has gotten the best PUE 1.18, and PUE 1.37 on average annually in general datacenters where cold and hot aisles are segregated; TCO (Total Cost of Ownership) has lowered 10% and target delivery efficiency increases 10 times; meanwhile, storage density has greatly advanced 100%. Hardware infrastructure of A80 2.0 Datacenter Rack Solution is up to 42U high, equipped with the standard aviation connectors, and supporting direct plugging to get on-line and ready to use.

All-in-one Rack ready for Enterprise

A30 Enterprise Rack Solution shares the same innovative infrastructure design of A80 2.0, is ready to be collocated with as easy as common supply mains, and at the rack height of 14U deploys the standard Internet and flexible node configurations on demand catering to business diversity, and at the same time greatly simplifies the cost of construction and deployment, which makes the enterprise to sync with benefits of the open standards of top-class datacenter easily.

A80G3 and A30G3 Datacenter/Enterprise Rack Solution series, along with Inventec Computing Node, Storage Node, and Cold Storage Node, can be flexibly applied to cloud computing ecology of the datacenter or the enterprise and bring the revolutionized innovative energy efficiency for the businesses. These features include:

Centralized Cooling

- Remove individual cooling fans in each server node
- Shared cooling fan wall fabric
- Save total cooling power consumption
- Smart rack cooling control
- Easy maintenance with hot-swappable fan

Centralized Power Supply

Introducing the latest copperplate node connector design, simplifying the copper busbar design on the rack and equipped with smart control, high performance, and mechanism of backup and recovery.

Centralized Management

- Rack Management Controller (RMC) can make cooling control of the entire rack by fan management policies, on the basis of independent Fan Control Boards (FCBs).
- Users can remotely manage node so as to real-time monitor the fan and the power.
- Convenient for clients to make remote management of the datacenter.

Diversified Nodes

- High performance computing node, adopting dual socket motherboard structure and multi-channels/inter-cache techniques to enhance computing performance.



A80G3 Rack Solution

- Hot swappable storage node with large capacity, one single node maximally supporting twelve 3.5" hot-swappable disks with large capacity, and supporting the RAID techniques on the bottom layer hardware, catering to the demand for real-time storage space of online business
- Cold storage node with large capacity, one single node supporting eighteen 3.5" hot-swappable disks with large capacity, and supporting data backup for core data.

High Density Design

- Node with high density design, in the space of 1U supporting computing capacity high up to 4 processors, doubly enhancing its high performance computing density in per unit space, and greatly economizing datacenter space.
- Rack nodes high densely deployed, A80 in 42U rack space not only accommodating network capability switch devices, centralized power facilities, and remote management modules, but also supporting computing capacity high up to 128 CPUs.

Intel® E5 v3 Family Rack Solution Series

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Model Name	A80G3	A30G3
Positioning	Datacenter Rack Solution	Enterprise Rack Solution
Dimensions	42U 21" Scorpio 2.0 Rack 600 Wx 1200 Dx 2100 H mm (Unit Height: 46.5mm)	14U 21" Scorpio 2.0 compatible Rack 600 W x1200 Dx 769 H mm (Unit Height: 46.5mm)
MLB Form Factor	Storage Node: 1U1N Computing Node:1U2N Cold Storage Node:1U1N	
Processor	Storage/Computing Node: Half-Width(6.5"x 20.2") Cold Storage Node: MiniITX (6.7"x 6.7")	
Memory	Storage/Computing Node: 2x Intel® Xeon® Processor E5 v3 Family, up to 135W CPU Cold Storage Node: Intel® Atom™ C2000 Series SoC	
Chipset	Storage/Computing Node: Max. 512GB, 16x DIMM slot Cold Storage Node: Max. 32G UDIMM, 4x DIMM slot	
Storage Bay	Intel® C610	
Expansion Slot	Storage Node: 12x hot-swappable 3.5" HDD, compatible with 2.5" HDD Computing Node: 4x 2.5" Hot-swappable HDD Cold Storage Node : 18x Hot-swappable 3.5" HDD	
Network	Storage/Computing Node: 1x PCIe Gen3 x16 2x PCIe Gen3 x8 OCP Mezzanine slot Cold Storage Node: None	
Management	Storage/Computing Node: OCP Mezzanine card option: 1G/10G SFP+/10G Base-T Cold Storage Node: 2x Intel® 82599 10G LOM port	
TPM	Storage/Computing Node: AST2400, supporting IPMI 2.0 Cold Storage Node: AST2300	
Power Supply	Optional	
Safety Regulation	4+4/5+5 2500W Power Module; Standard aviation connector	4+4 3600W PSU; Supply mains connector