Prefabricated Modular Data Center

Introduction

Modular data center is a small-andmedium-sized prefabricated
Modular infrastructure solution that supports flexiblecon figuration
and Online capacity expansion for ICT convergence scenarios.
The overall Solution consists of device modules,powe rmodules,and
auxiliary modules (optional).
The moduletype,quantity,and layout can be Flexibly configured to
meet different requirements for ICT device deployment.All modules
are prefabricated in the factory to minimize
On sitework load and implement quick deployment.

Outdoor application

Shed application

Application Scenarios

- Small-and medium-sizedgovernmentand enterprisedata- centers
- Carrier-owneddata center
- Small-and medium-sized IDC

Warehouse application

Features & Value

Simple

- Pre-integration and pre-test of devices in the factory, reducing the TTM by 50%+
- Modular design, on-demand deployment, and online capacity expansion.

Green

- Hot aisle containment design, cold and hot aisle isolation, improving cooling efficiency.
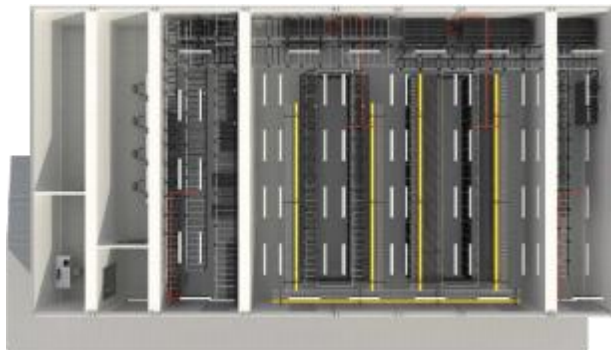- Green onsite construction, no dust and noise on the construction site.

Smart

- The unique iCoolingtechnology to dynamically link the Indoor and outdoor units for self-optimization.
- Precise resource status identification and tenant information management to maximize the value of data center resources.
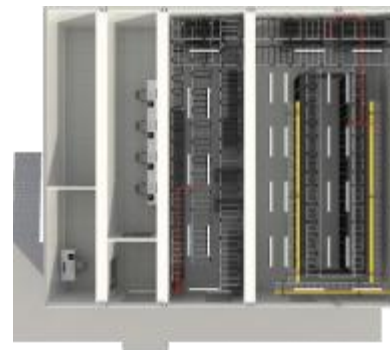
Reliable

- GR 63-Zone3 shockproof, which equivalent McN9 intensity earthquake resistance.
- Huawei iPowertechnology implements full-link monitoring of power supply and distribution to ensure automatic fault diagnosis and reporting.

Layout and Overall Parameters

ICT Scenario Layout

CT Scenario Layout

Category	Item	Parameters
General	Application scenario	Outdoor, shed, and warehouse
	Installation type	Floor-mounted installation
	Altitude Range	≤4000m（derating above 1000m）
	Number of stacking layers	≤ 3 floors
	Working humidity	5% RH～95% RH
	Operating temperature	-20℃ ~ +55℃, -40。C~+45。C (an electric heating belt is installed at the bottom if the temperature is lower than –5。C)
	Environment adaptability	A/B/C type environment [1]
	Enclosure lifespan	25 years
Structure	Module dimensions (HxWxD)	Wide pre-fab. module: 3600 mm x 3495 mm x 12192 mm; Standard pre-fab. module: 3600 mm x 2438 mm x 12192 mm
	Raised floor	No
Load	Anti- seismic	GR 63-Zone3
	Windproof	Wind speed 32.7m/s
Power	Power mode	380/400/415V 50/60Hz; three phase and four wire +PE
	Power configuration	IT module: 200kVA-UPS, 2N; CT module: TP482000B DC power supply (dual parallel system), 2N
	Smart Bus Configuration	IT module: Huawei 250A bus, dual-bus A and B configurations for single-row cabinets CT module: 4 x 2000 A DC PDF (TPD48202B)
	Backup power specifications	IT module: Huawei SmartLi –backup power of 15 minutes for one side at full load; CT module: Huawei BoostLi –backup power of 2 hours for one side at full load.
Cooling	Cooling	Huawei NetCol8000-A055D
	Redundancy	N+1
Monitoring	DCIM	NetEco
	Power and environment monitoring system	Centralized ECC collection
	Access control system	By default, the card reader is configured at the in-room and module levels. The cabinet access control system supports customized password locks in the front door.
	CCTV	The default storage duration is 30 days.
Fire extinguishing	Fire extinguishing system	Automatic gas fire extinguishing, CE version, non-addressable [2]
	Gas	HFC227-ea
	Fire resistance time to the external sheathing structure (structural wall)	Standard: the external wall 90 minutes and the internal wall 60 minutes
	Fire resistance time of the fireproof door	90 minutes
	ASD	support customized

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① Type C environments are between500 m to 3700 m away from strong corrosive environments (such as the seaside, garbage piled up, and heavily polluted chemical plants).

② The fire extinguishing system can be selected and addressed. The fire extinguishing system can be removed.

Equipment module parameters

IT module

CT module

Category	Item	Parameters	
		IT equipment module	CT equipment module
General	Total Capacity	≤150kW	
	Average power per cabinet	6kW（25x6kW+Monitoring cabinet) 5.5kW（27x5.5kW+Monitoring cabinet）	6.25kW（24x6.25kW+precision PDF）
	Maximum power per cabinet	10kW	
	600mm wide cabinet	26(Main aisle width≤ 1.5m); 28(Main aisle width≤ 0.9m)①	
Structure	Module dimensions (H x W x D)	Wide pre-fab. module: 3600 mm x 3495 mm x 12192 mm Standard pre-fab. module: 3600 mm x 2438 mm x 12192 mm	
	Box assembly	ICT scenarios: 2pcs-3495mm+2pcs-2438mm; CT scenario: 2pcs-3495mm	
	Raised floor	No	
Power	Power mode	380/400/415V 50/60Hz; three phase and four wire +PE	
	Power configuration	200kVA-UPS, 2N	TP482000B DC power supply(dual parallel system), 2N
	Average power per cabinet	6 kW (25 x 6 kW + monitoring cabinet) 5.5 kW (27 x 5.5 kW + monitoring cabinet)	6.25 kW (24 x 6.25 kW + PDF)
	Backup power specifications	Huawei SmartLi –backup power of 15 minutes for one side at full load.	Huawei BoostLi –backup power of 2 hours for one side at full load.
Cooling	Cooling	Huawei NetCol8000-A055D	
	Redundancy	3+1	
	Cooling capacity	55kW@35℃/35℃	
	Aisle containment	Hot aisle containment	
	Continuous cooling	15min@full load	
	Temperature control range of the cold aisle	18~27 C	
	Humidity control range of the cold aisle	20%~80% RH	
Monitoring	DCIM	NetEco	
	Power and environment monitoring system	Centralized ECC collection	
	Access control system	By default, the card reader is configured at the in-room and module levels. The cabinet access control system supports customized password locks in the front door.	
	CCTV	The default storage duration is 30 days.	
Fire extinguishing	Fire extinguishing system	Automatic gas fire extinguishing, CE version, non-addressable ②	
	Gas	HFC227-ea	
	Fire resistance time of the external protective structure (structure wall)	Standard: the external wall 90 minutes and the internal wall 60 minutes	
	Fire resistance time of the fireproof door	90 minutes	
	ASD	support customized	

①By default, only IT cabinets are provided. The depth of a CT cabinet ranges from 600 mm to 1200 mm.

② The fire extinguishing system can be selected and addressed. The fire extinguishing system can be removed.

Power module parameters

IT power module

CT power module

Category	Item	Parameters	
		IT power module	CT power module
General	Capacity	≤200kW	
Structure	Length ×Width × Height (mm)	12192 ×2438 ×3600	12192 ×3495 ×3600
	Raised floor	No	
Power	Power mode	380/400/415V 50/60Hz; three phase and four wire +PE	
	Input voltage range	380/400/415V±15%，but the 415V power supply can only reach +10%.	
	Input power factor	0.99	
	Power configuration	200kVA-UPS，2N	TP482000B DC power supply(dual parallel system)，2N
	Battery Specifications	SmartLi, 512 V, 80 Ah, 2 PCS SmartLi-512 V-40 Ah-1 PCS	BoostLi-48 V-100 Ah-16 PCS (8 PCS for route A and 8 PCS for route B) SmartLi-512 V-40 Ah-1 PCS
	Backup time	15 minutes for one side at full load.	2 hours for one side at full load.
	Rated charge voltage of batteries	544 V DC	53.5 V DC
	Charge current of batteries	≤ 1C, 0.5C by default	Maximum: 1 C
	Maximum discharge current of batteries	480 A continuous discharge (6C)	100 A/100 A @ 35ºC
	Efficiency	96%	97%
Cooling	Cooling	Huawei NetCol8000-A055D	
	Redundancy	1+1	
	Cooling capacity	38kW@24℃/35℃	
	Inlet temperature range	20~30°C	
	Humidity range	Noncondensing	
Monitoring	Power and environment monitoring system	Centralized ECC collection	
	Access control system	By default, the card reader is configured at the in-room levels.	
	CCTV	The default storage duration is 30 days.	
Fire extinguishing	Fire extinguishing system	Automatic gas fire extinguishing, CE version, non-addressable [①]	
	Gas	HFC227-ea	
	Fire resistance time of the external protective structure (structure wall)	Standard: the external wall 90 minutes and the internal wall 60 minutes	
	Fire resistance time of the fireproof door	90 minutes	
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