

村田电源解决方案- 为 OCP & AI 提供能效供电架构

村田制作所 电源产品专家 杨宁

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村田电源介绍及 OCP & AI 电源解决方案



OCP & AI 电源 方案

Power Shelf

M-CRPS PSU

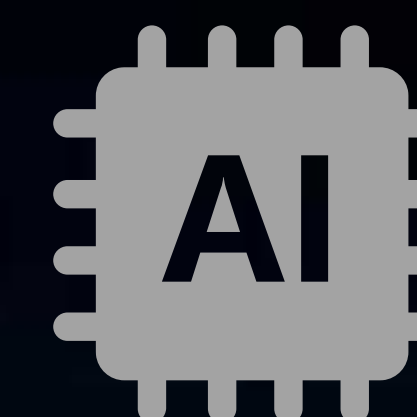
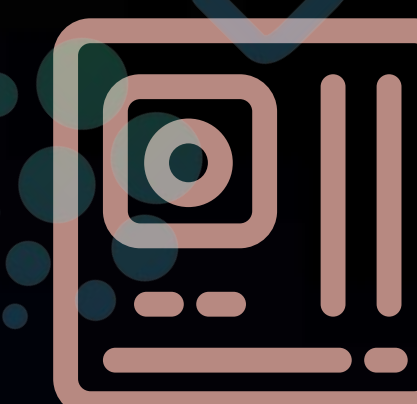
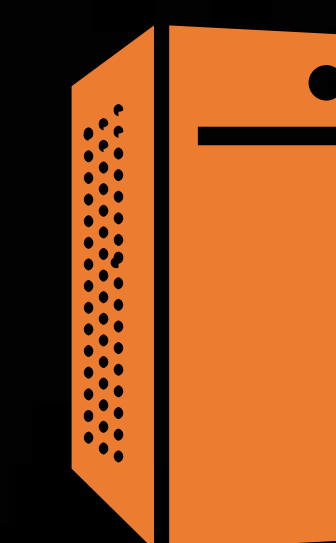
砖电源DC-DC模块

XPU模组电源

HVDC (Shelf & Brick)

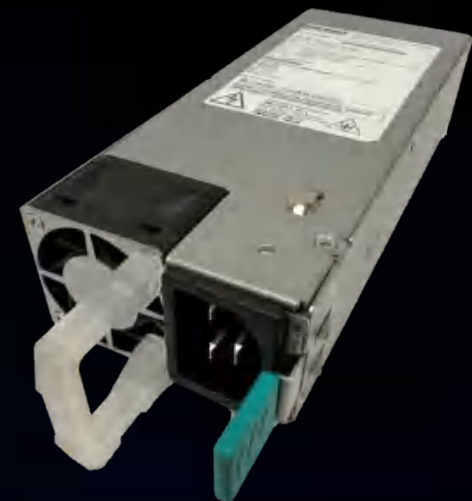
BBU 用电池电芯

液冷CDU电源

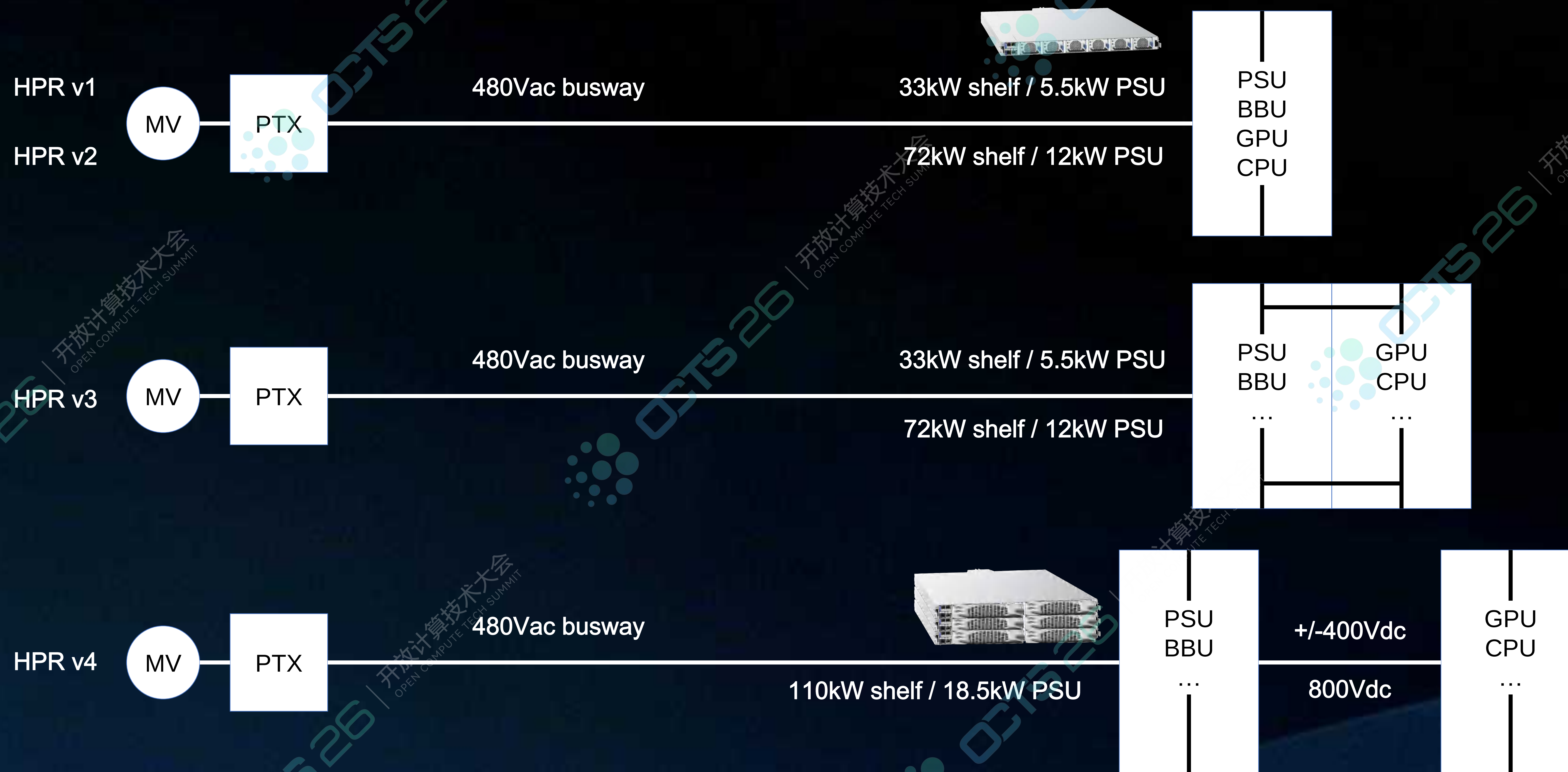


村田与OCP的合作

年份	历史
2013	加入OCP社区
2017	发布了支持 ORV1 版本机架的电源框，以及其它产品
2019	发布了支持 ORV2 版本机架的电源框产品
2021	发布了54V系统产品
2021	开始设计支持ORV3版本的产品
2023	已发布ORV3系统多款产品（PSU，电源框等）
2024	MCRPS 12V 3200W PSU, 以及PDU等附件产品,
2025	ORV3 HPR V1 Shelf, MCRPS 54V 3200W PSU
2026	HVDC 产品



OCP ORV3 HPR 整机柜供电趋势



ORV3 HPR 33kW Power Shelf 系列

10U/21"
MWOCES-211-P-D



- 适配标准 ORV3-HPR 机柜
- 33kW(N+0) 输出功率, 支持 N+1/N+N 等冗余配置方式
- 支持多种输入类型 (3-phase Delta/Wye, HVDC)
- 2路输入端子
- 支持 SNMP, WebGUI, Redfish, Modbus 等功能
- 支持 BBU
- 支持多片并联, 输出 100kW 以上功率

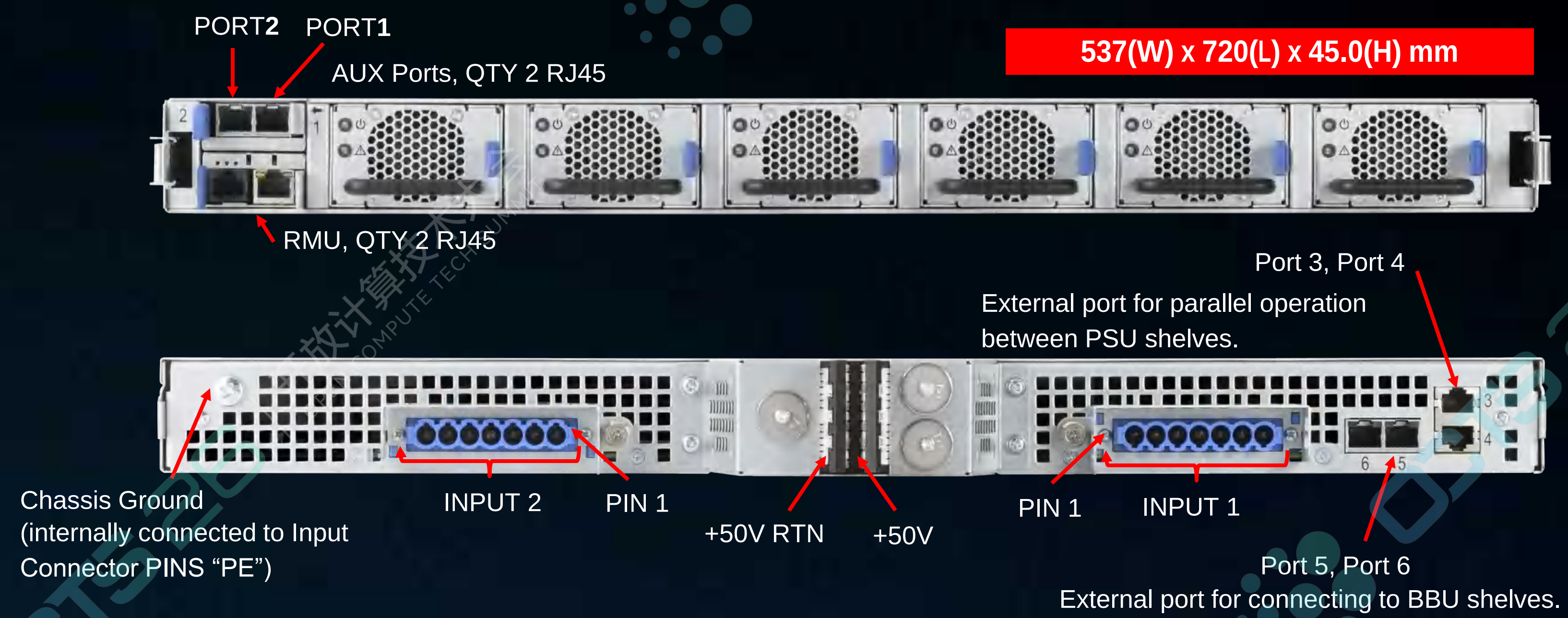
1RU/19"
MWOCES-191-P-D



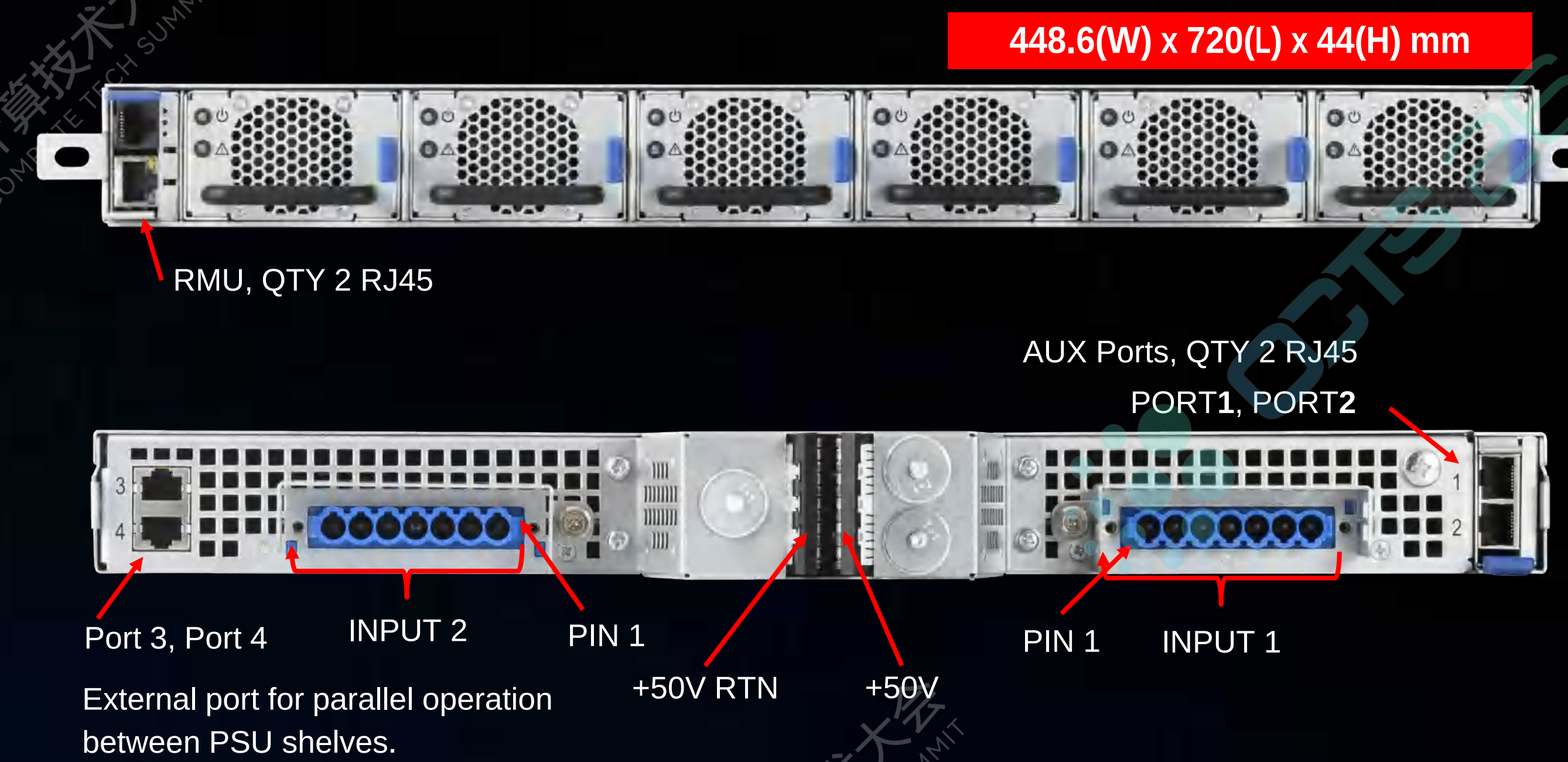
- 适配 19" EIA 机柜
- 33kW(N+0) 输出功率, 支持 N+1/N+N 等冗余配置方式
- 支持多种输入类型 (3-phase Delta/Wye, HVDC)
- 2路输入端子
- 支持 SNMP, WebGUI, Redfish, Modbus 等功能
- 支持多片并联, 输出 100kW 以上功率

ORV3 HPR 33kW Power Shelf 端口一览

10U/21”
MWOCES-211-P-D



1RU/19”
MWOCES-191-P-D

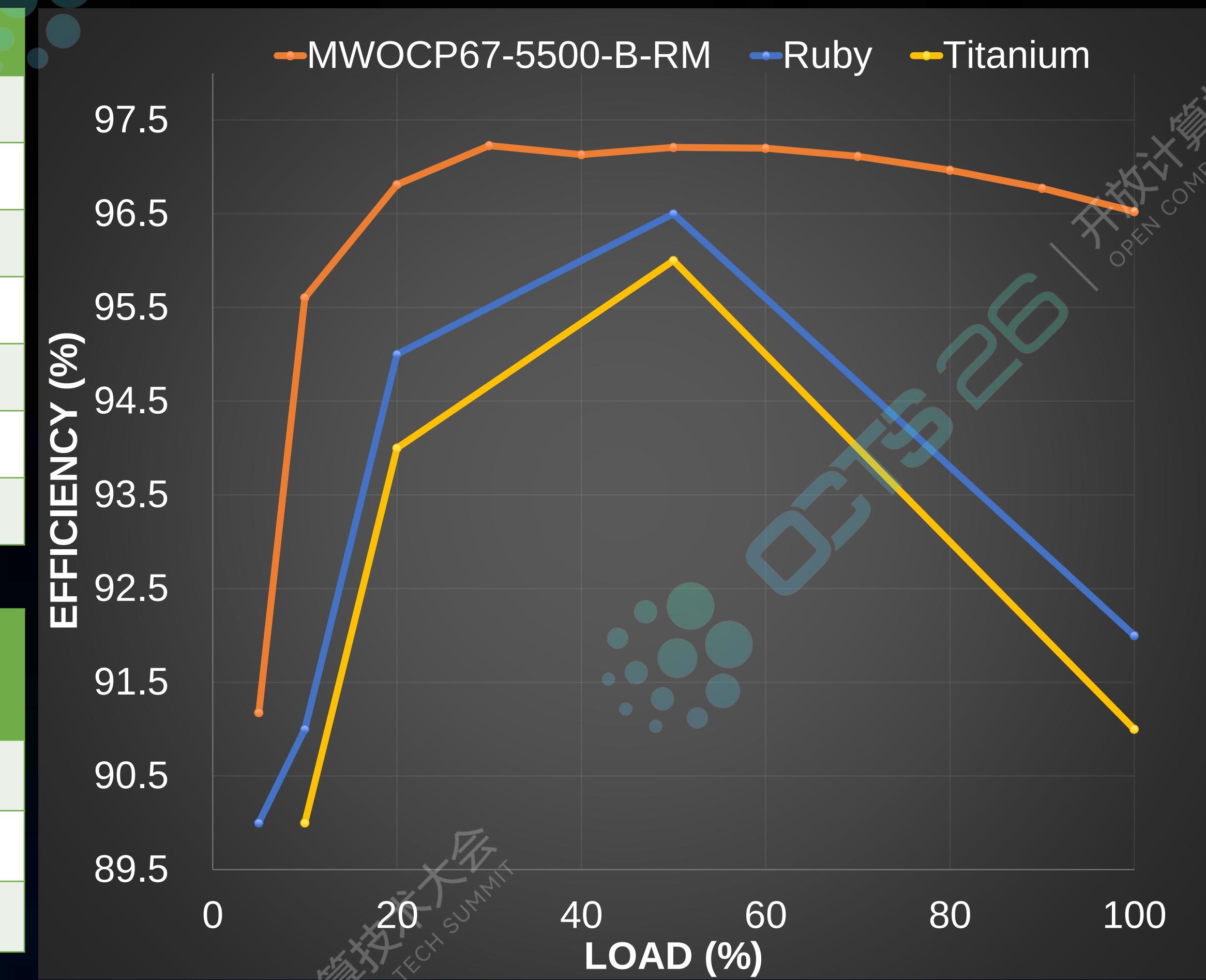


ORV3 HPR 5.5kW PSU电源模块



MWOCP67-5500-B-RM				
Input voltage	180-305Vac/192-400Vdc			
Output voltage	50.0V			
Output power	5.5 kW			
Efficiency	Ruby			
Temperature	0-45°C			
Power density	52.6W/in ³			
Form factor	67×640×40mm			

80 PLUS @230Vac	Load 10%	Load 20%	Load 50%	Load 100%
PLATINUM	-	90%	94%	91%
TITANIUM	90%	94%	96%	91%
Ruby	92%	95%	96.5%	92%



50V/54V ORV3/ORV2 Power Shelf

【10U/21"】 MWOCES-211-P-C



ORV3 type

【1RU/19"】 MWOCES-191-M-B



ORV2 type

P/N	Width Height	Vout	Input	Max Output
MWOCES-211-P-C	21" 10U	50V, 54.5V	3-phase Delta/Wye, Single-phase, HVDC	21.6kW(N+0), 10.8kW(N+N)
MWOCES-211-P-C-S	21" 10U	50V, 54.5V	3-phase Delta/Wye, Single-phase, HVDC	20.4kW(N+0)
MWOCES-191-P-C	19" 10U	50V, 54.5V	3-phase Delta/Wye, Single-phase, HVDC	21.6kW(N+0), 10.8kW(N+N)
MWOCES-191-M-B	19" 1RU	50V, 54.5V	3-phase Delta/Wye, Single-phase, HVDC	21.6kW(N+0), 10.8kW(N+N)

Murata Power Shelf Lineup

P/N	Width / Height	Output	Input	Rack	Outlet	Max output power
MWOCES-211-F	21"/10U	12V	3phase Wye Single phase	V2	2	15kW (N+1) 9kW (N+N)
MWOCES-211-G	21"/10U	12V	3phase Wye Single phase	V2	2	15kW (N+1) 9kW (N+N)
MWDCES-191-C	19"/1RU	12V	3phase Wye/Delta Single phase	EIA19"	2	12kW (N+1)
MWOCES-192-M	19"/2RU	12V	3phase Wye/Delta Single phase	EIA19" V2	6	15kW (N+1) 9kW (N+N)
MWOCES-191-M-B	19"/1RU	50/54V	3phase Wye/Delta Single phase/HVDC	EIA19" V2	0	18kW (N+1) 10.8kW (N+N)
MWOCES-211-P-C	21"/10U	50/54V	3phase Wye/Delta Single phase/HVDC	V3	0	21.6kW (N+0) 10.8kW (N+N)
MWOCES-211-P-C-S (single input)	21"/10U	50/54V	3phase Wye/Delta Single phase/HVDC	V3	0	21.6kW (N+0) 10.8kW (N+N)
MWOCES-191-P-C	19"/1RU	50/54V	3phase Wye/Delta Single phase/HVDC	EIA19" V3	0	21.6kW (N+0) 10.8kW (N+N)
MWOCES-191-P-D (HPR)	19"/1RU	50V	3phase Wye/Delta Single phase/HVDC	EIA19"	0	33kW (N+0) 16.5kW (N+N)
MWOCES-211-P-D (HPR)	21"/10U	50V	3phase Wye/Delta Single phase/HVDC	V3	0	33kW (N+0) 16.5kW (N+N)



ORV3 HRP Shelf 除了提供标准的 Bar Clip连接方式，也提供螺栓（Bolt）连接的输出接头选项

Murata New Power Shelves Coming Soon...



In Plan
72kW(N+0)
Power shelf



In Development
110kW(N+0)
Power shelf



In Plan
50V/12kWPSU



In Development
54V/18.5kWPSU

OCP整机柜供电产品系列

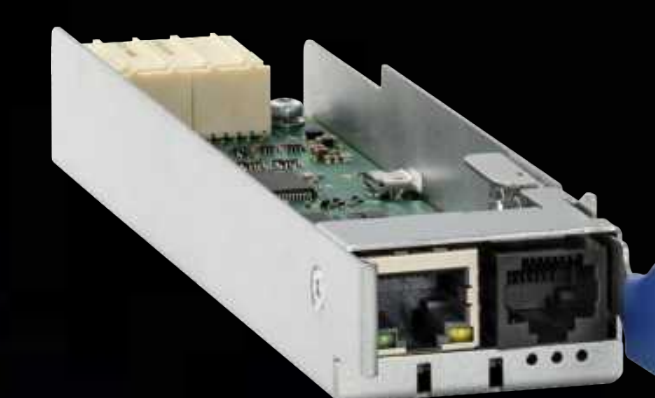
电源框系统



PSU

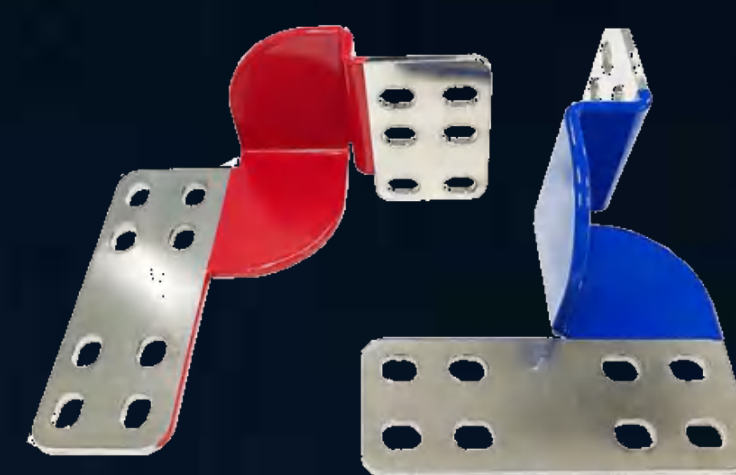


Power shelf



RMU

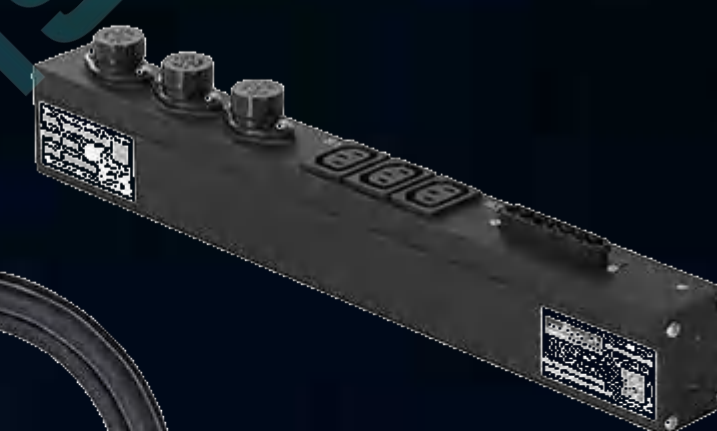
附件



Mounting KIT



Power Cable



PDU



Panel

远程管理单元



MWOC-RMU-3

LED指示灯

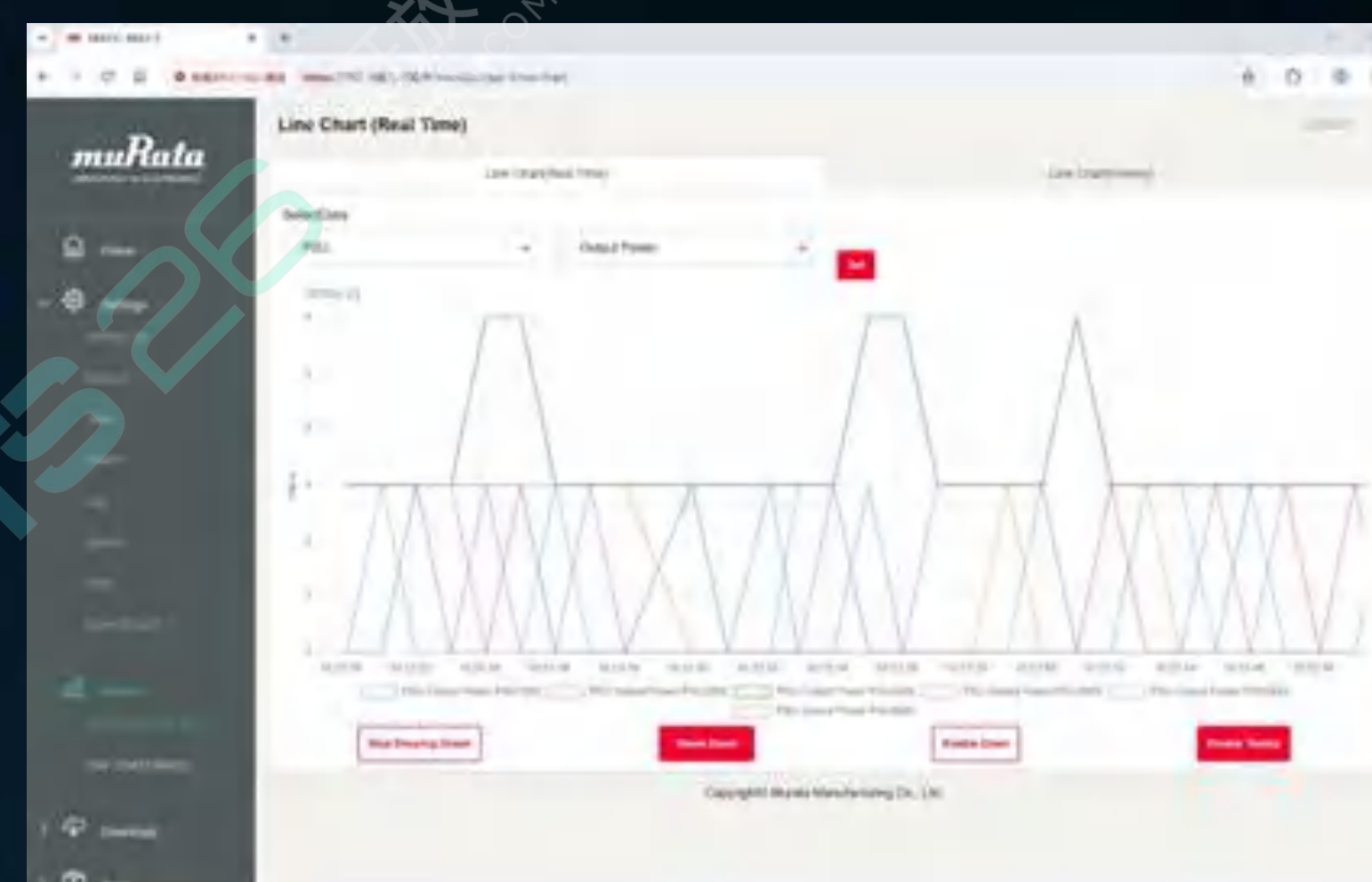
2个RJ45端口

图形化显示测量数据

适用于多种电源框

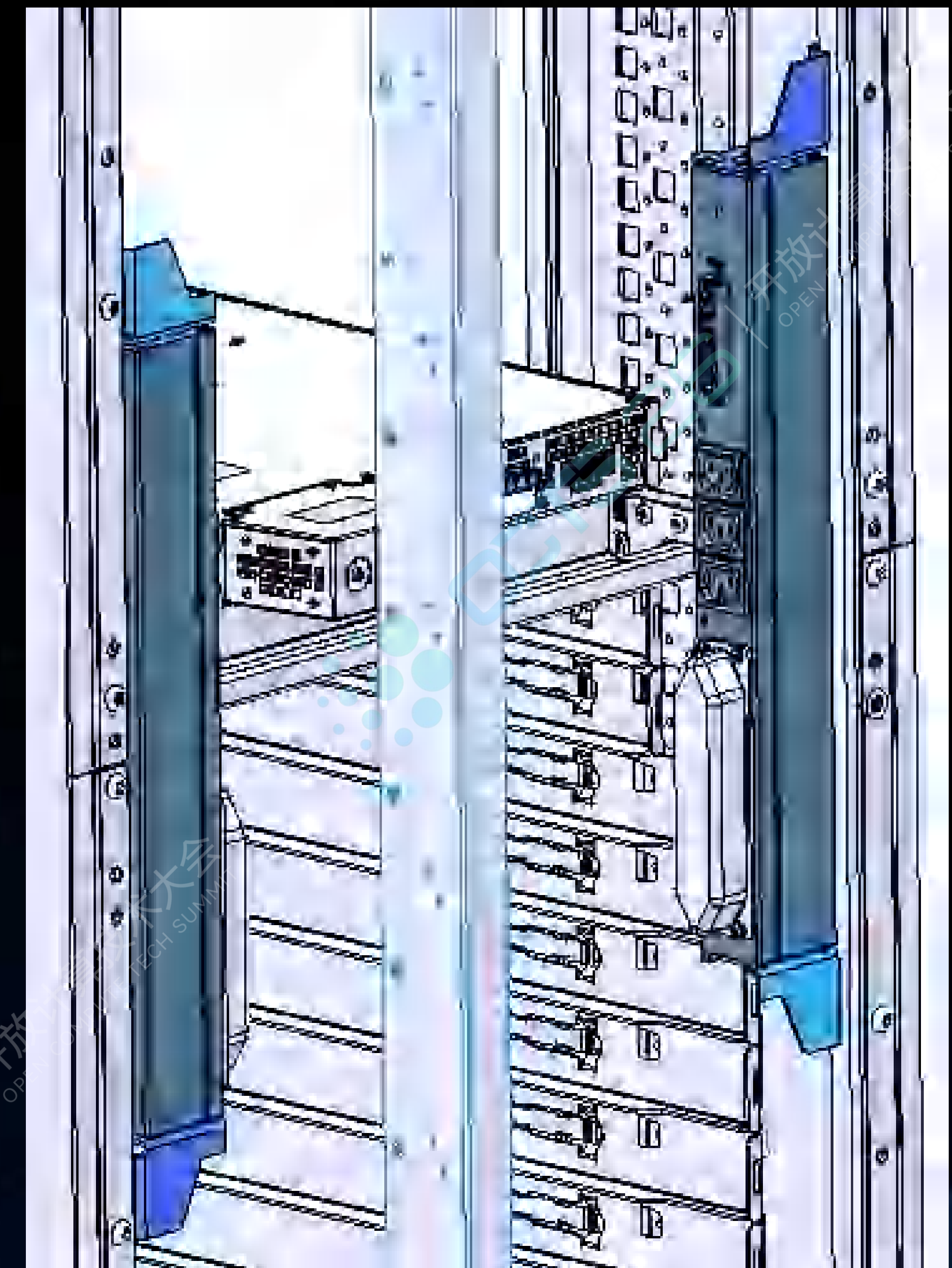
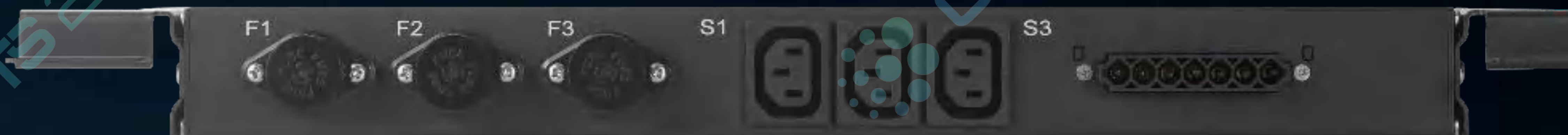
支持Redfish API

支持1000BASE-T



ORV3 PDU MWOC-PDU-A-3

- ✓ ORV3 机柜附属PDU
- ✓ 提供3个 C13 插座 (10A)
- ✓ 在机柜内方便扩展设备 (网络交换机等)
- ✓ 可附着于机柜左边或者右边
- ✓ 支持3相 Delta/Wye 或者单相输入
- ✓ 使用与 Power Shelf 相同的输入连接头
- ✓ 通过分叉线可与Murata ORV3 power shelf配合使用



用于浸没式液冷的 Power Shelf

村田提供浸没式液冷的解决方案

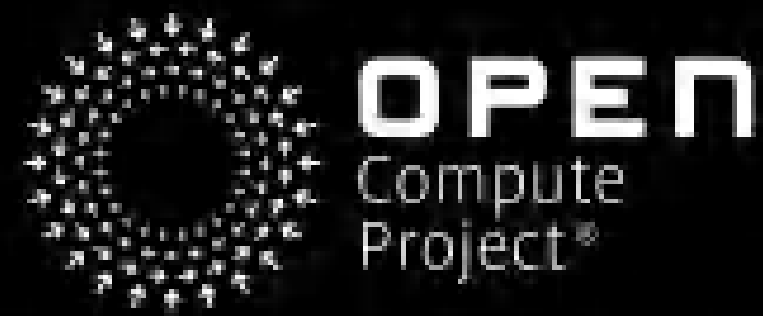
- 电源系统方案专门基于浸没式液冷开发
- 特点：
 - 产品基于 OCP
 - 30U 高度
 - 3.6 kW x 15 PSUs
 - 5.5 kW x 15 PSUs (在研中)
 - 累计可插入 15 片 PSU 和 3 片 RMU
 - 50.5/54.5V 输出电压
 - 热插拔
 - N+1 / N+N 冗余
 - 专门基于浸没式液冷开发



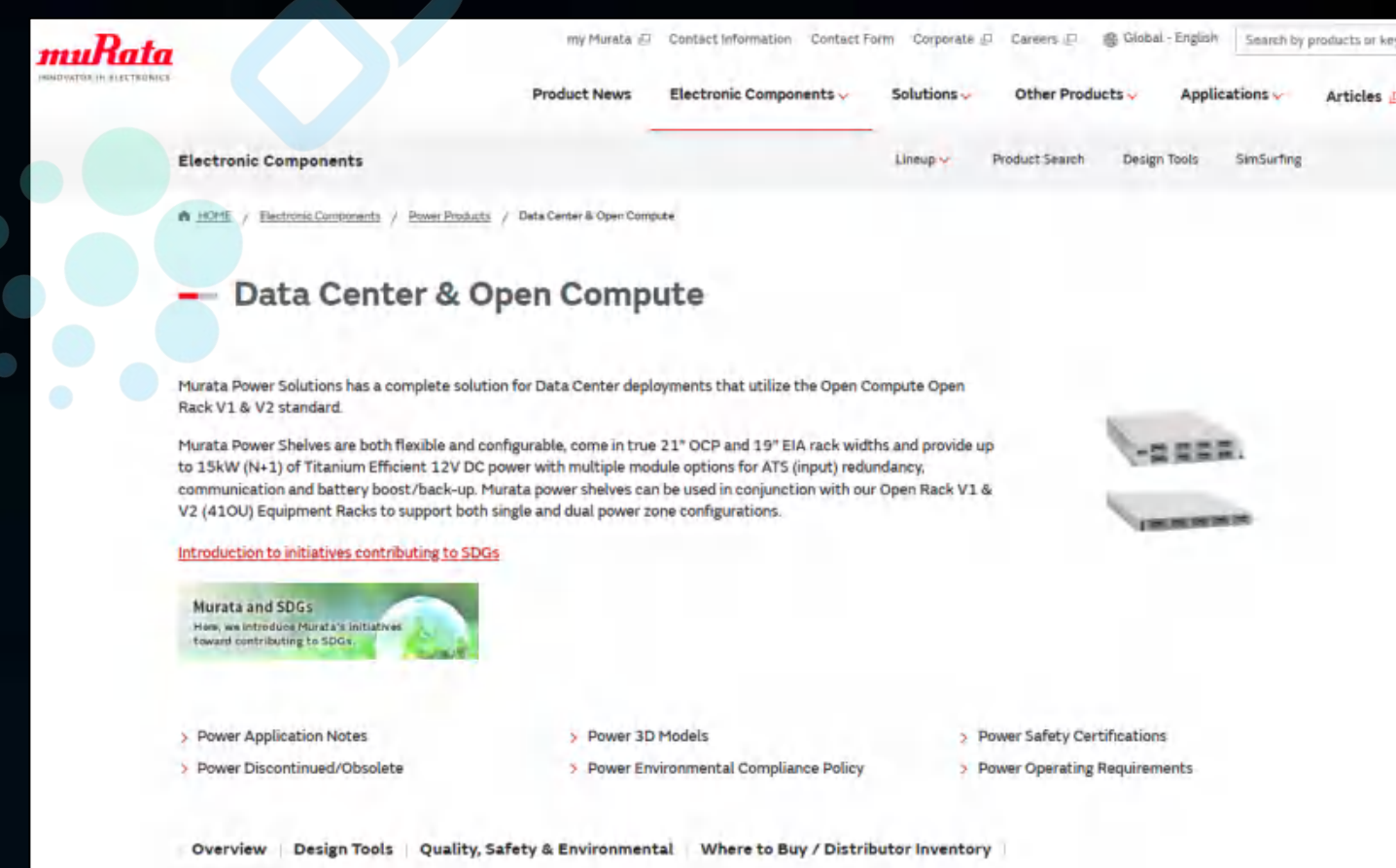
浸没式液冷

$3.6\text{kW} \times 15\text{PSUs} = 54\text{kW (MP)}$

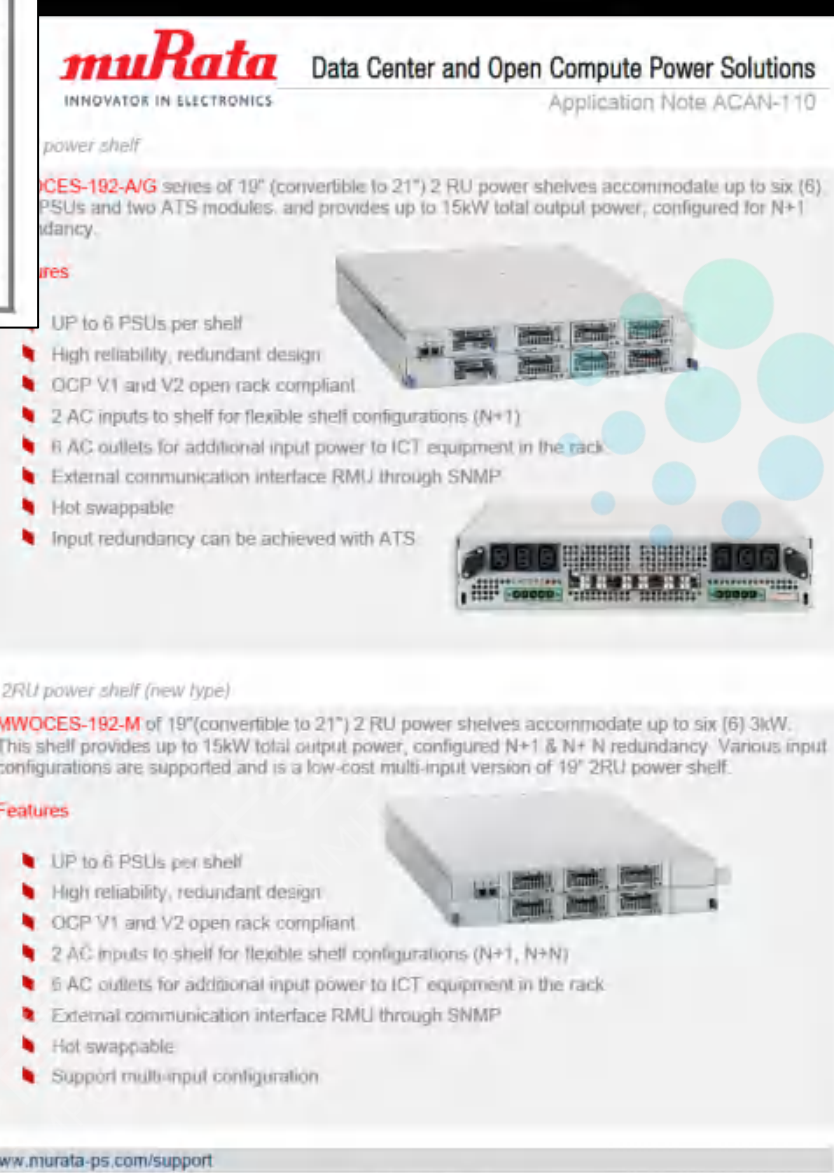
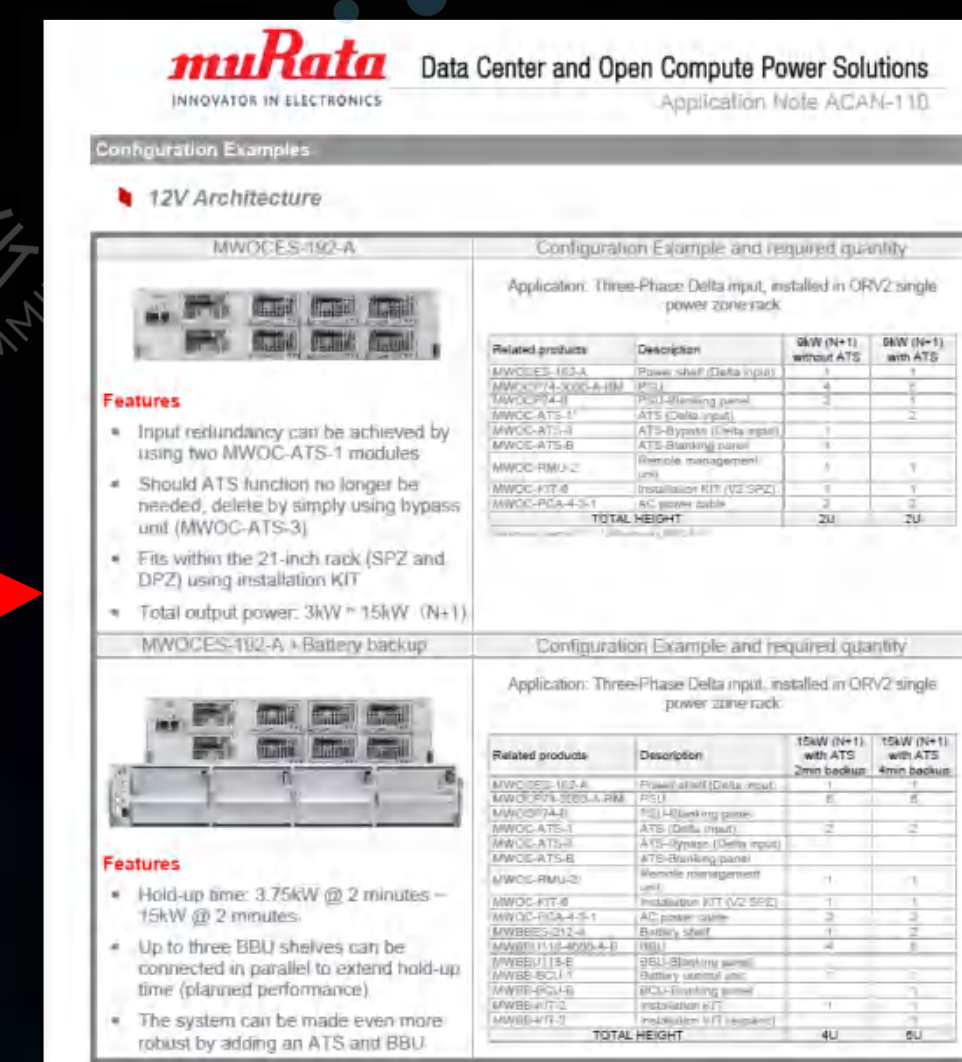
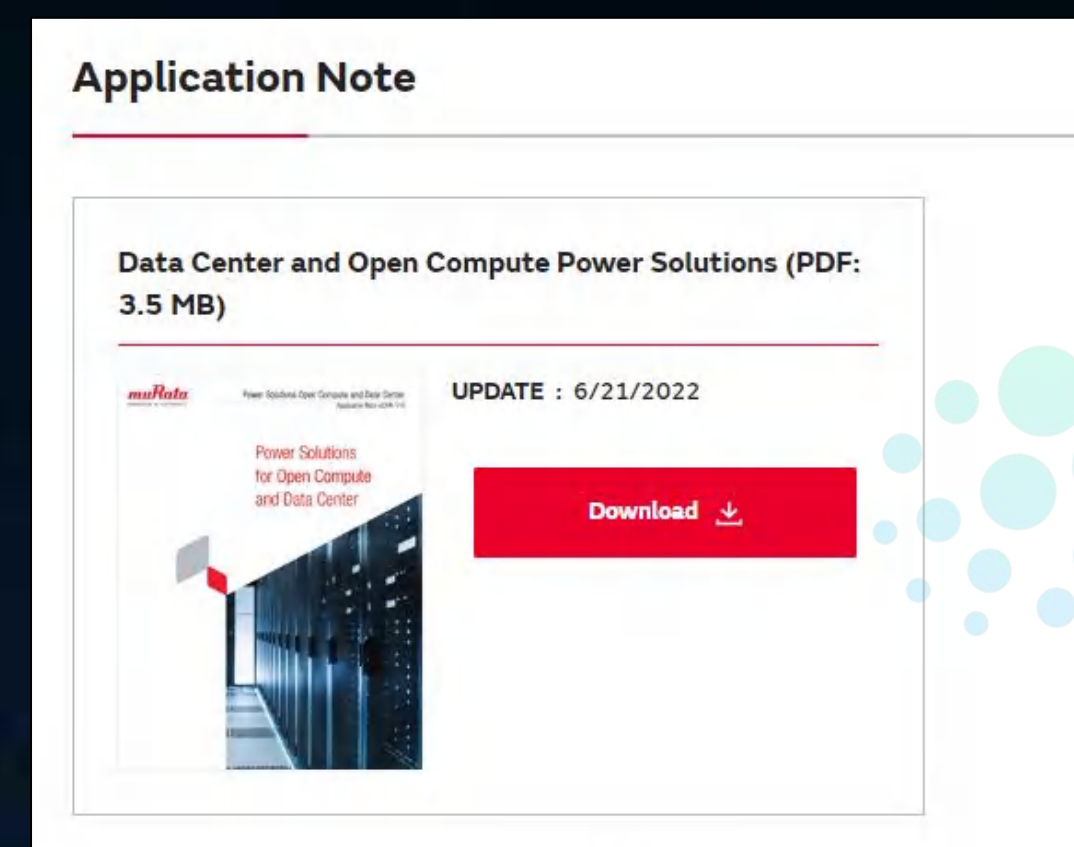
$5.5\text{kW} \times 15\text{PSUs} = 82.5\text{kW (In Development)}$



整机柜供电应用笔记 Application Notes



<https://www.murata.com/en-global/products/power/open-compute>



M-CRPS185 3200W 12V/54V PSU

M-CRPS Compliant, 3200W, 54Vout FEP

- M-CRPS Compliant - Backwards compatible with CRPS out of the box
- Form Factor:
 - 74mm x 185mm x 40mm
 - 2.15" x 7.28" x 1.57"
- 90-264V_{AC} Input, IEC320-C22 AC input connector
- 54V_{DC} Main Output, 12V_{DC} Standby Output
- >97W/In³ power density
- >96% Efficiency @ 50% Load
- Hot pluggable, N + 1 Redundancy
- Overvoltage, overcurrent, overtemperature fault protection
- PMBus™ 1.2 compliant for monitoring and control with CRPS compliant SMBAlert#



M-CRPS Compliant, 3200W, 12Vout FEP

- M-CRPS Compliant - Backwards compatible with CRPS out of the box
- Form Factor:
 - 74mm x 185mm x 40mm
 - 2.15" x 7.28" x 1.57"
- 90-264V_{AC} Input, IEC320-C22 AC input connector
- 12V_{DC} Main Output, 12V_{DC} Standby Output
- >97W/In³ power density
- >96% Efficiency @ 50% Load
- Hot pluggable, N + 1 Redundancy
- Overvoltage, overcurrent, overtemperature fault protection
- PMBus™ 1.2 compliant for monitoring and control with CRPS compliant SMBAlert#

用于主板供电 - 非隔离型砖电源 Roadmap



非隔离型全稳压砖电源 MPQ2000

Model Number	Output Power	Input Voltage	Output Voltage (Typical)	Efficiency	Dimensions
MPQ2000-12V167-L48	2000W	40-60Vdc	12V	97.9%	2.3" x 1.45" x 0.58"

FEATURES

- DOSA Compliant Quarter-Brick
- 40-60V Input Voltage Range
- 97.9% Peak Efficiency (Target)
- Non-Isolated
- Output Voltage/Current: 12V/167A
- Wide Operating Temperature Range -40°C to +85°C
- Integrated Baseplate for Thermal Performance
- Over Current/Voltage/Temperature Protection
- Active Current Share
- Negative Logic (standard configuration)
- PMBus 1.3 Supported
- Planned Certifications UL 62368-1 3rd Edition, CAN/CSAC22.2 No.62368-1-19;IEC 62368- 1:2018



用于主板供电 - 隔离型砖电源 Roadmap



隔离型全稳压砖模块 MPQ1800

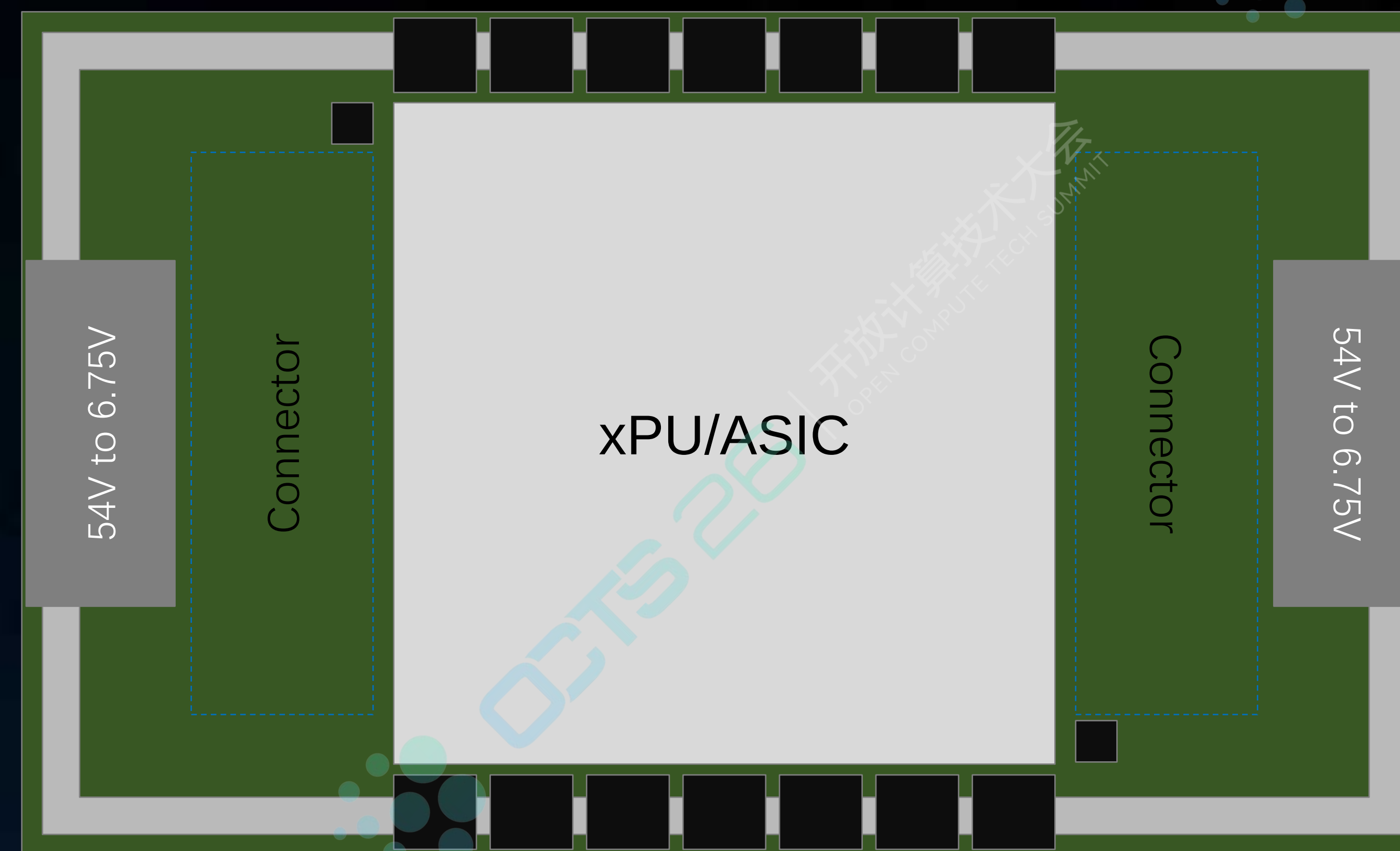
Model Number	Output Power	Input Voltage	Output Voltage (Typical)	Efficiency	Dimensions
MPQ1800-12V150-L48	1800W	40-60Vdc	12V	97.5%	2.3" x 1.45" x 0.59"

FEATURES

- DOSA Compliant Quarter-Brick
- 40-60V Input Voltage Range
- 97.5% Peak Efficiency
- Isolation voltage (Input-to-Output): 700Vdc
- Output Voltage/Current: 12V/150A
- Wide Operating Temperature Range -40°C to +85°C
- Integrated Baseplate for Thermal Performance
- Over Current/Voltage/Temperature Protection
- Active Current Share
- Negative Logic (standard configuration)
- PMBus 1.3 Supported
- Planned Certifications UL 62368-1 3rd Edition, CAN/CSAC22.2 No.62368-1-19; IEC 62368-1:2018



GPU 模组 / OAM 供电方案

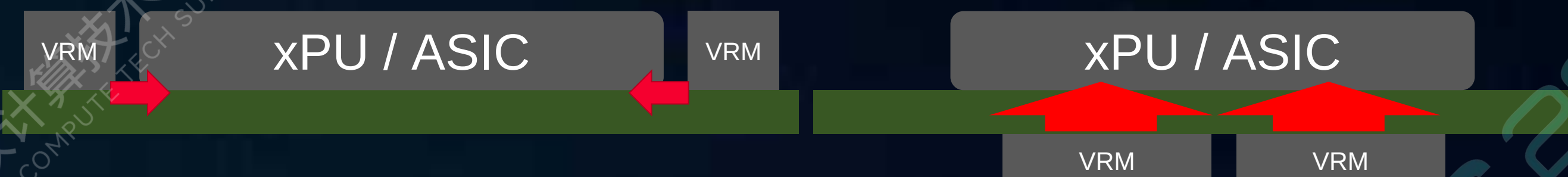


Top View

2 power delivery type

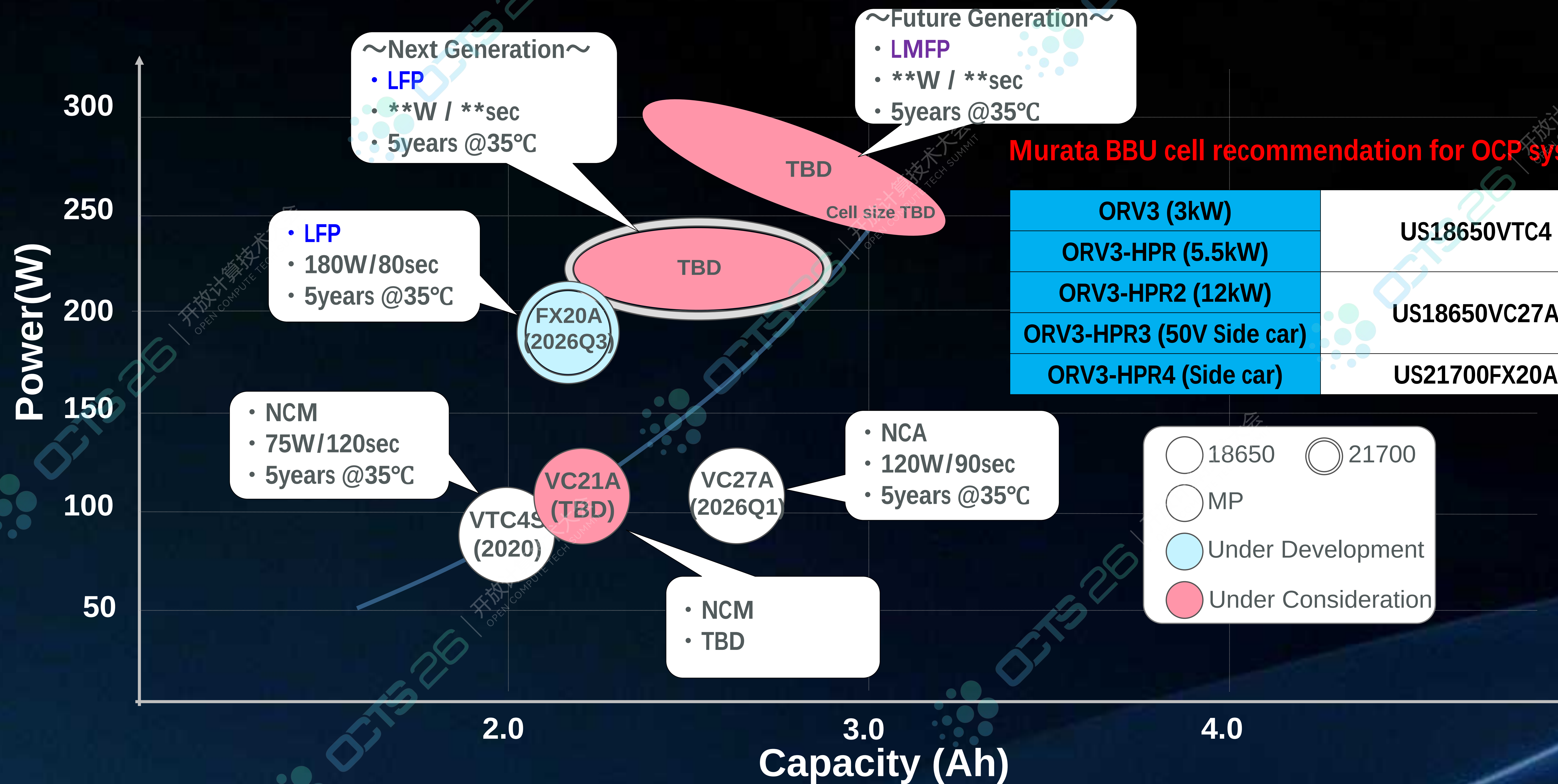
Lateral

Vertical

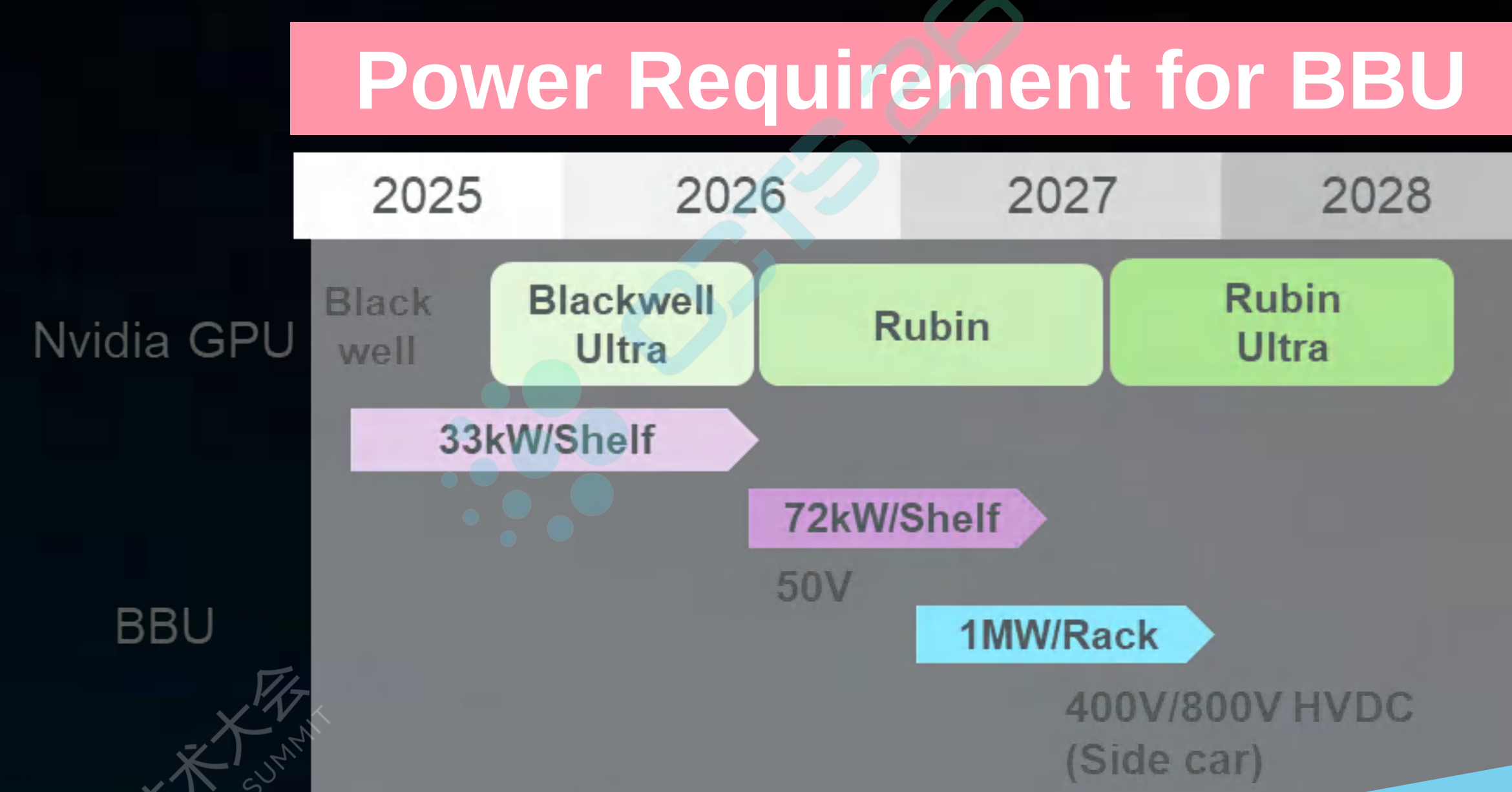


Side View

Murata cell solutions for BBU



Why Murata



Murata's Contribution through Battery Cells

High Power



High Power Technology cultivated in Power Tool market

- Low impedance technology, structure and chemical

Safety



Safety and Long life Technology cultivated in ESS market

- LFP technology, UL9540A
- 15+ years of market experience with zero incidents

Stable Supply



Stable Supply from multiple locations

- Made in JPN / SGP
- 5+ years market experience in BBU



村田全方位解决方案 打造绿色·智能·高效的数据中心



电源产品



传感器



通信模块/
室内实时准确定位系统



圆柱型锂离子电芯



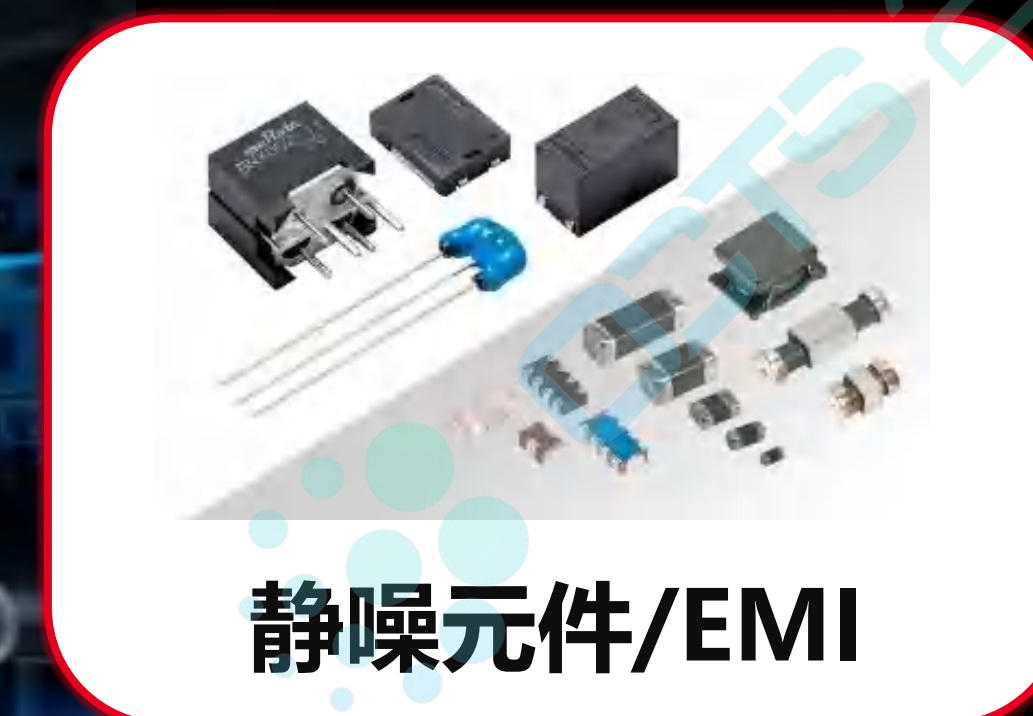
集成封装技术/IPAS



与您携手同行 共筑美好未来



电容器/硅电容



静噪元件/EMI



热敏电阻

THANKS

