Open. Together.

OCP SUMMIT

Executive
Track 1

Common Building Blocks Product Architecture and Technologies for Workload Optimization

Steven Lu, VP of Product Management,
Wiwynn Inc.

OPEN PLATINUM™

OPEN Compute Project
SOLUTION PROVIDER®

Agenda

. Wiwynn Introduction and Product/Technology Strategies

. Common Building Blocks Architecture

. Wiwynn Technologies for Workload Optimization

wiwynn®

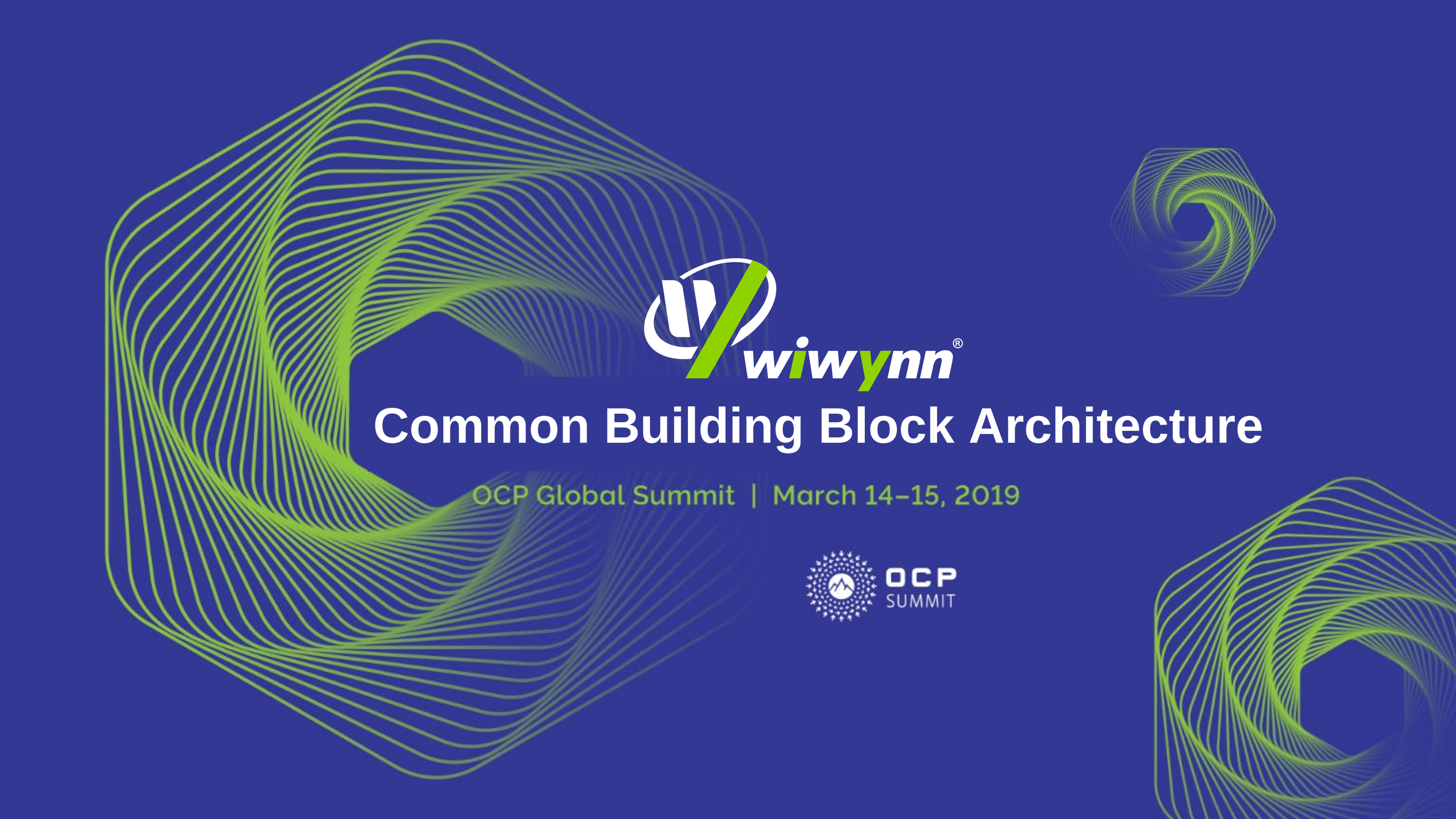
- Established on April 2, 2012
- Listed on the Taiwan Emerging Stock on Nov. 13, 2017

A Value Partner for Customers in Cloud Service Business

Wiwynn Strategy – Maximize Customer Value

$$\text{Customer Value} = \frac{\text{Workload Performance}}{\text{Total Cost of Ownership}}$$

Outpace General Market Growth


wiwynn®
Common Building Block Architecture
OCP Global Summit | March 14–15, 2019
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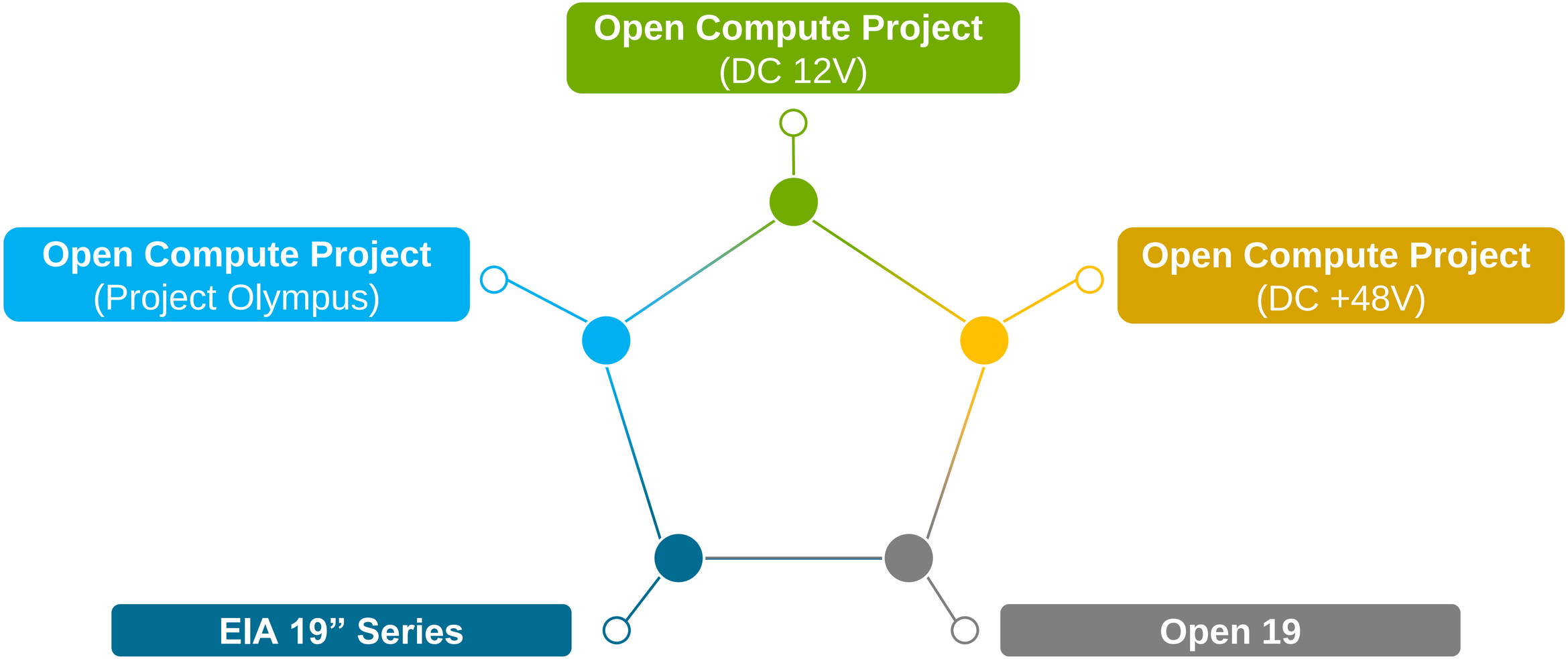
Various Rack Infrastructures to Support different Workloads Requirements



Diverse Product Lines for Performance/Cost Optimization

Compute Server

Edge & Front-End Server

Multi-Purpose & Storage Server

JBOx —

HDD, All Flash, GPU

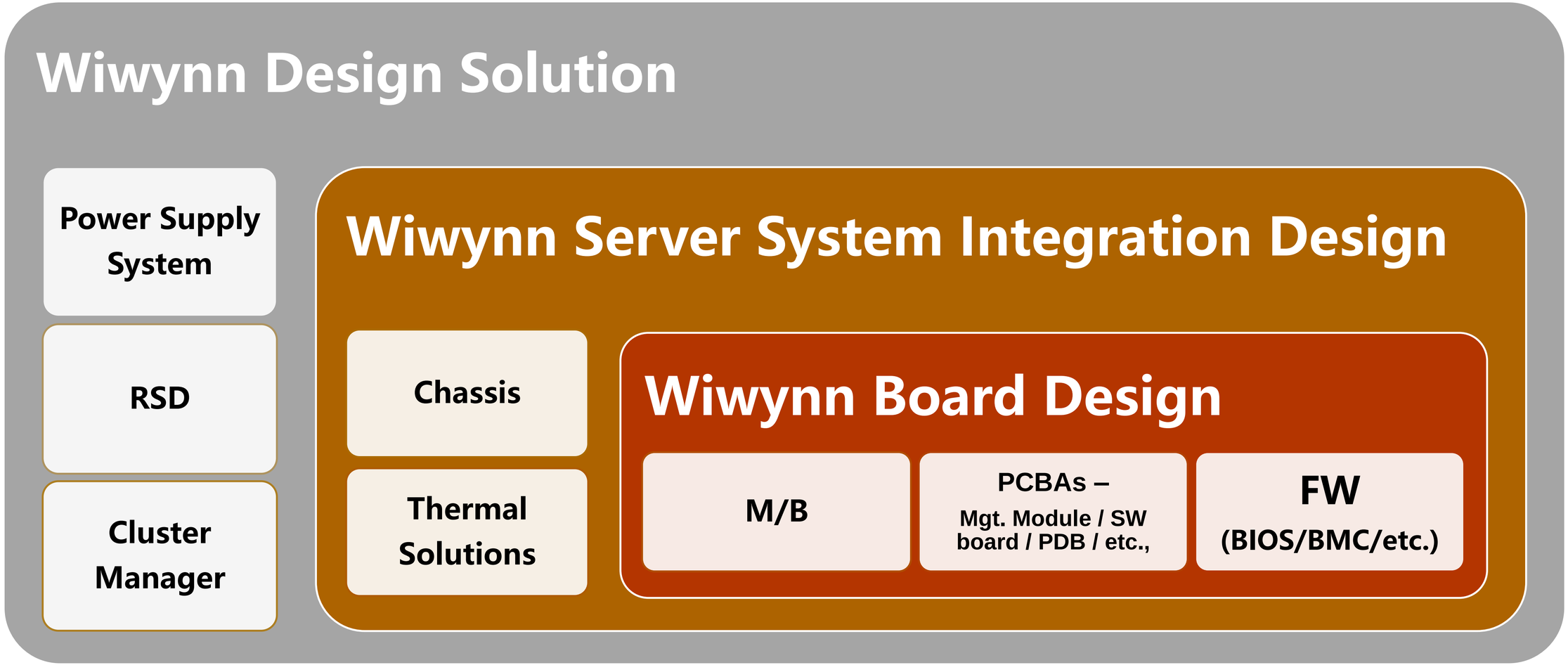
01

02

03

04

Wiwynn Building Block Architecture Design to Fulfill Various Customers Demands



Major Building Block Components

- **M/B**
  - Intel M/B
  - AMD M/B
  - ARM M/B
- **PCBAs**
  - Mgt. Module
  - PCIe Switch/SAS Exp. Board
  - Power Conversion/ Distribution Board
- **FW**
  - BIOS
  - BMC
  - FW (PCIe Switch / SAS Expander etc.,)
- **Chassis**
  - OCP 21”
  - OCP 19”
  - EIA 19”
  - Open19

Examples of Common Building Blocks Products Design

- **Wiwynn Mt. Olympus Family**
  - ✓ SV6100G3 (Open19 1U Server)
  - ✓ SV500G3 (EIA 19” 4U GPU Server)
  - ✓ SV7400G3 (OCP 21” 4U GPU Server)
- **Wiwynn Tioga Pass Family**
  - ✓ SV7220G3 (Tioga Pass for General Market)
  - ✓ SV302G3 (EIA 19” 1U2N)
- **DC-SCM** (Datacenter Ready Secure Control Module) **PoC**
  - ✓ Integrate BMC, Fan/PSU control, RoT (Root of Trust), BIOS/BMC Flash, and Boot device.

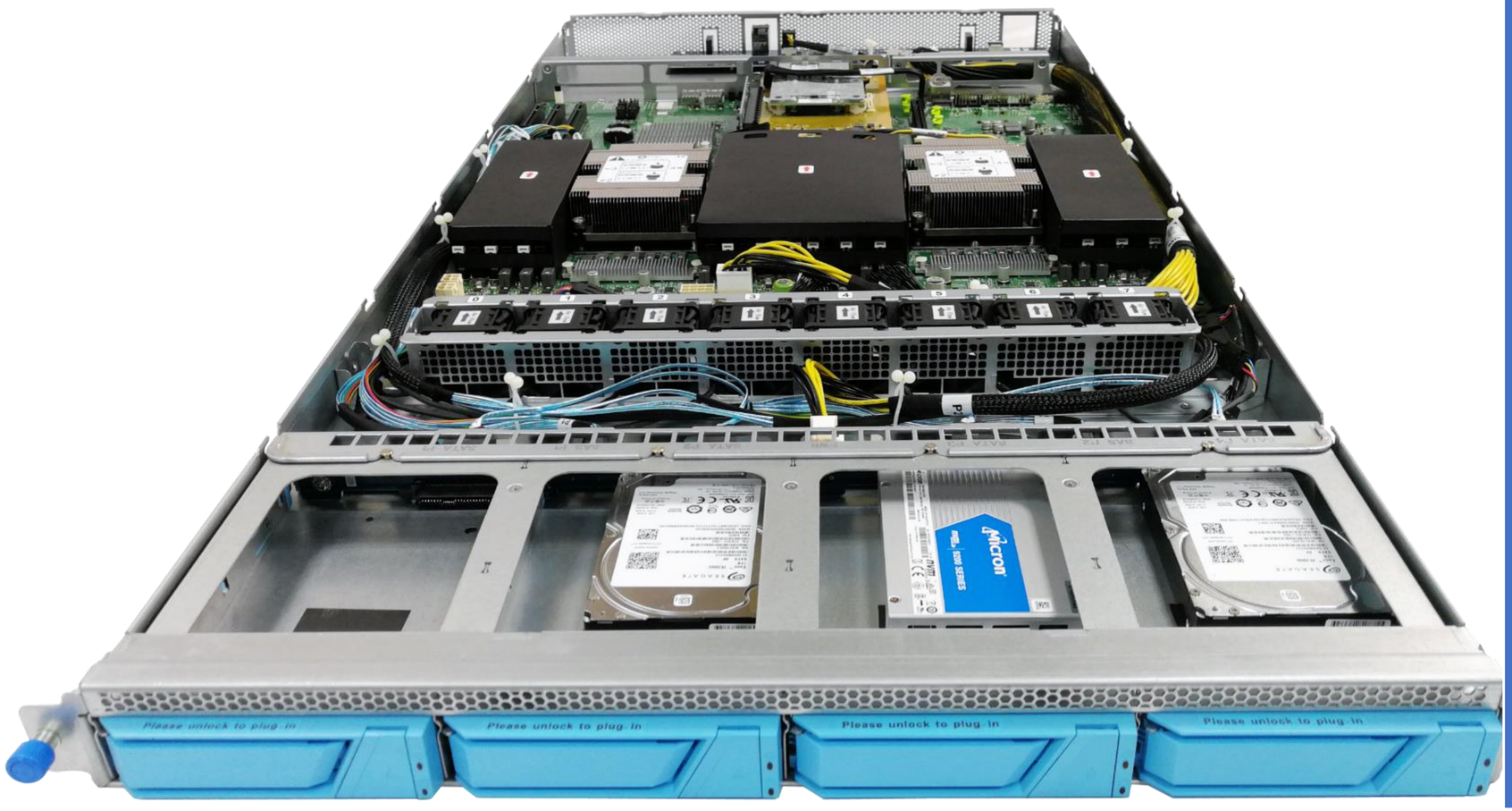
Siamak Tavallaei, Principal Architect, Microsoft
Friday March 15, 2:30pm - 2:55pm, 201 CG

Wiwynn SV5100G3 – 1U Olympus Server

1U Mt. Olympus

- Olympus M/B
- FW (BIOS/BMC)
- TPM / Cerberus
- Thermal Solution
- OCP 19” Chassis

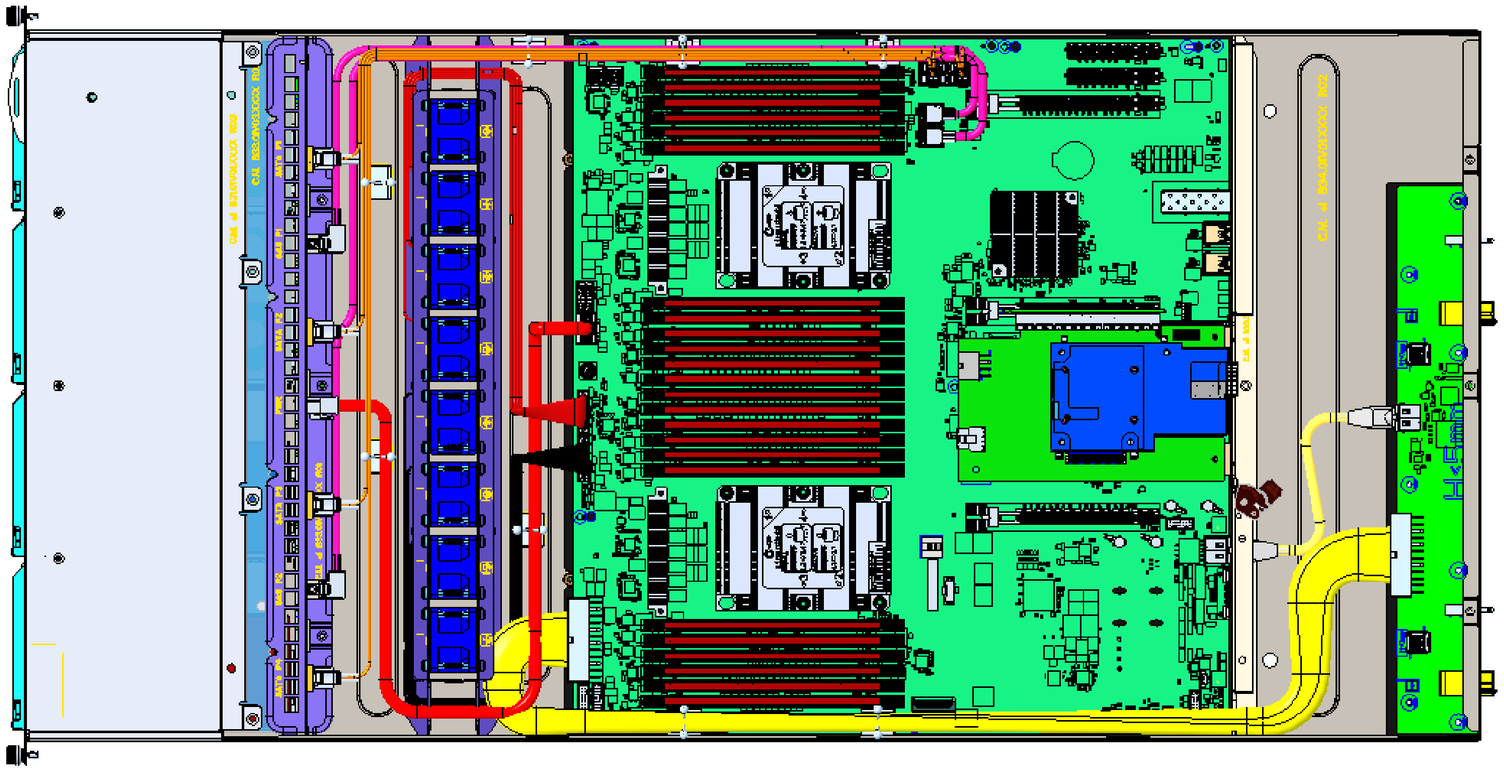
Wiwynn SV6100G3 – Open19 1U Server



1U Open19 Server

- FW (BIOS/BMC)
- TPM / Cerberus
- SW Board
- PDB
- Thermal Solution
- EIA 19” Chassis

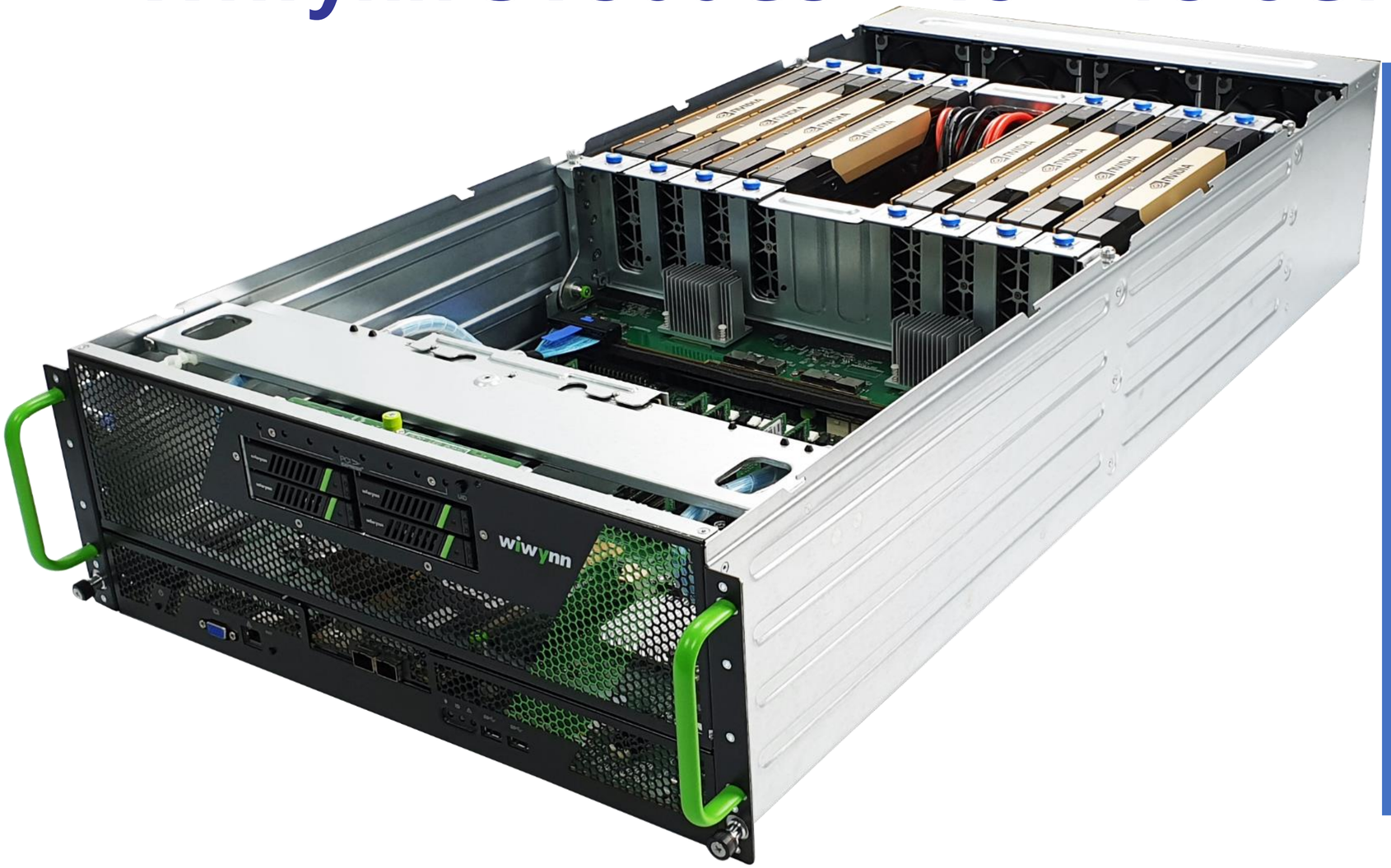
Wiwynn Open 19 1U Server Use Same MB and TPM with Project Olympus



1U Olympia

- Olympus M/B
- FW (BIOS/BMC)
- TPM / Cerberus
- SW Board
- PDB
- Thermal Solution
- EIA 19” Chassis

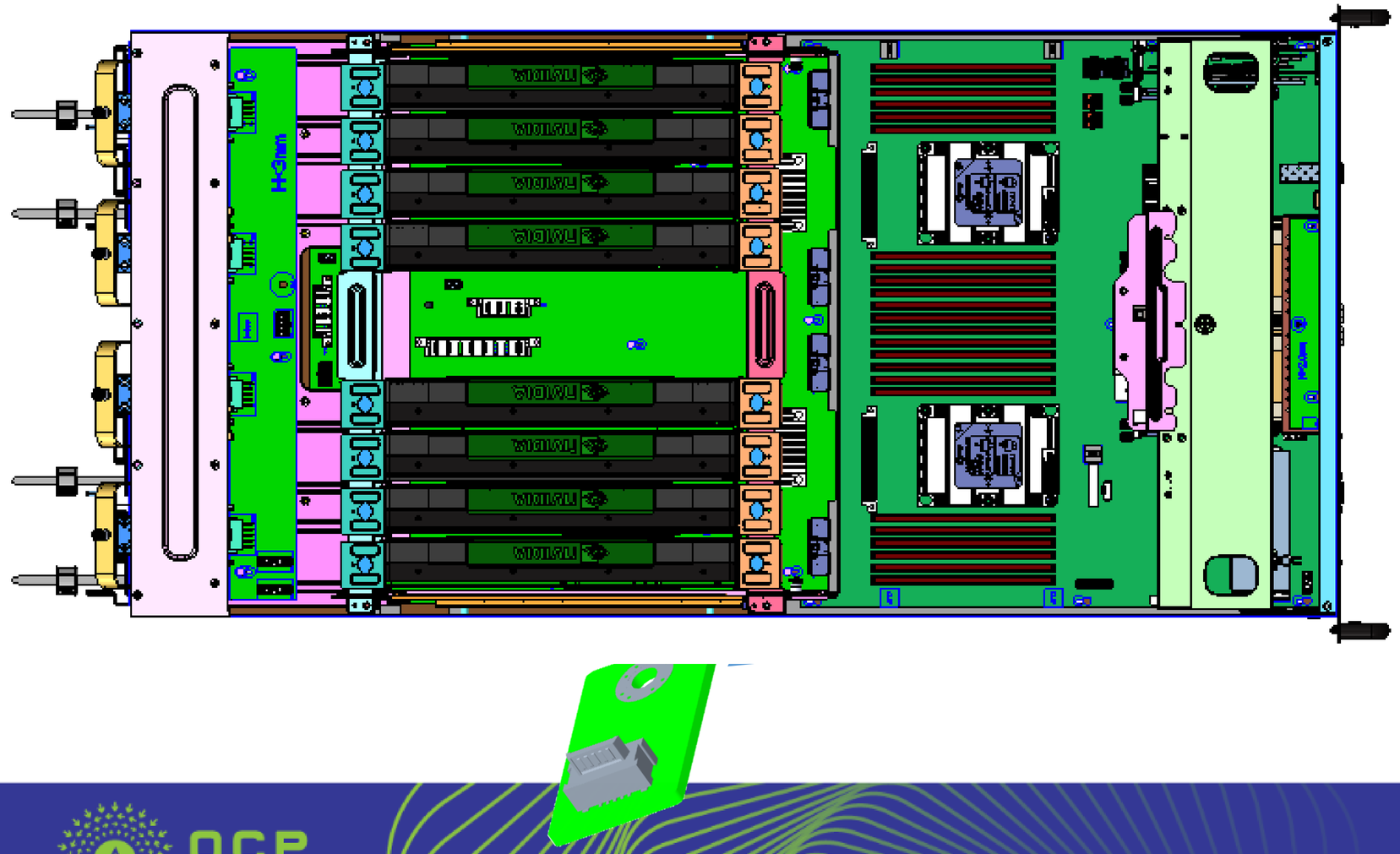
Wiwynn SV500G3 – 19” 4U 8GPU Server



4U8 GPU Server

- Olympus M/B
- FW (BIOS/BMC)
- TPM / Cerberus
- SW Board
- PDB
- Thermal Solution
- EIA 19” Chassis

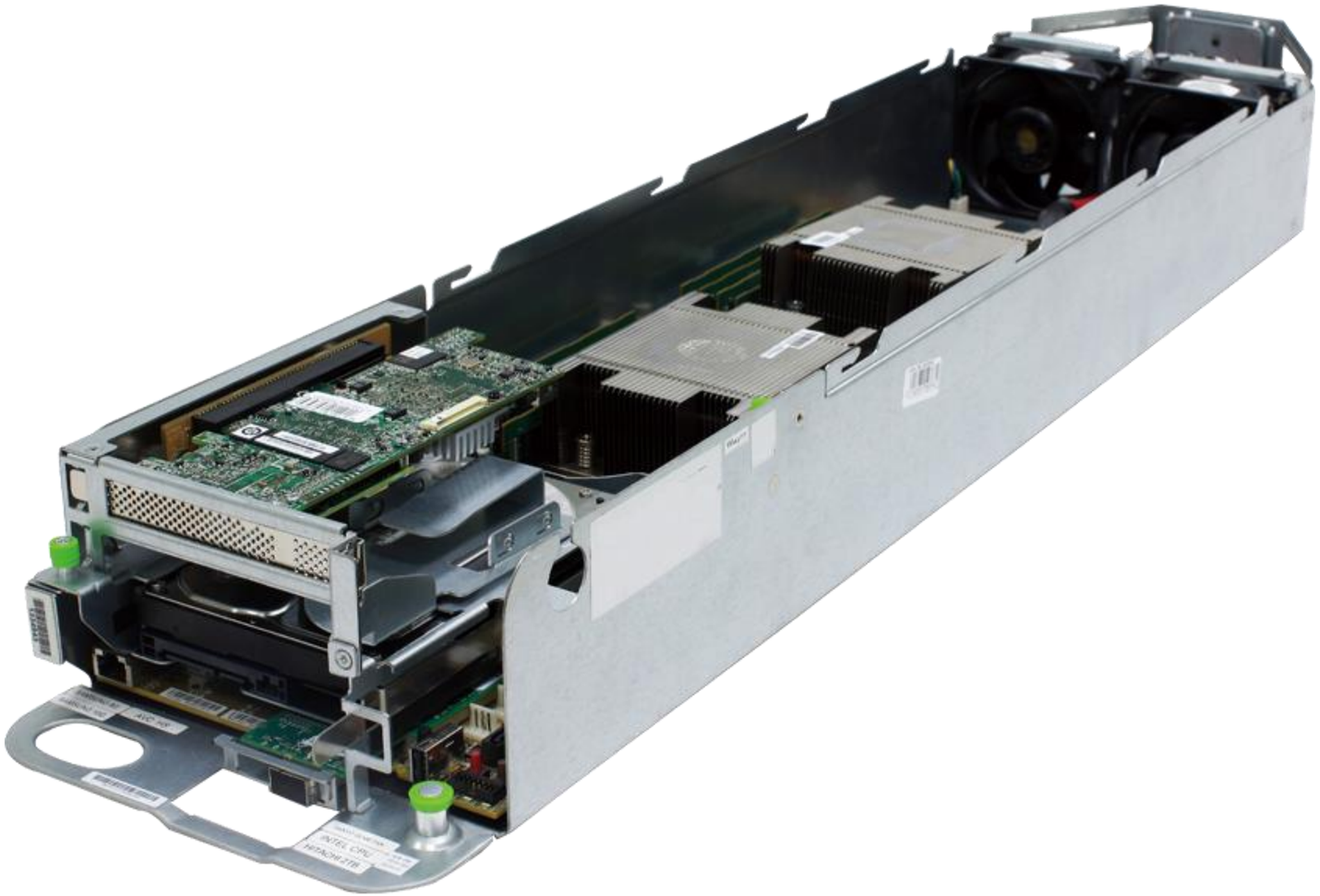
SV500G3 use the same MB and TPM with Project Olympus and PCIe- Switch Board with SV7400G3 (OCP 4U 8GPU Server)



4U8 GPU Server

- Olympus M/B
- FW (BIOS/BMC)
- TPM / Cerberus
- PCIe SW Board
- PDB
- Thermal Solution
- EIA 19” Chassis

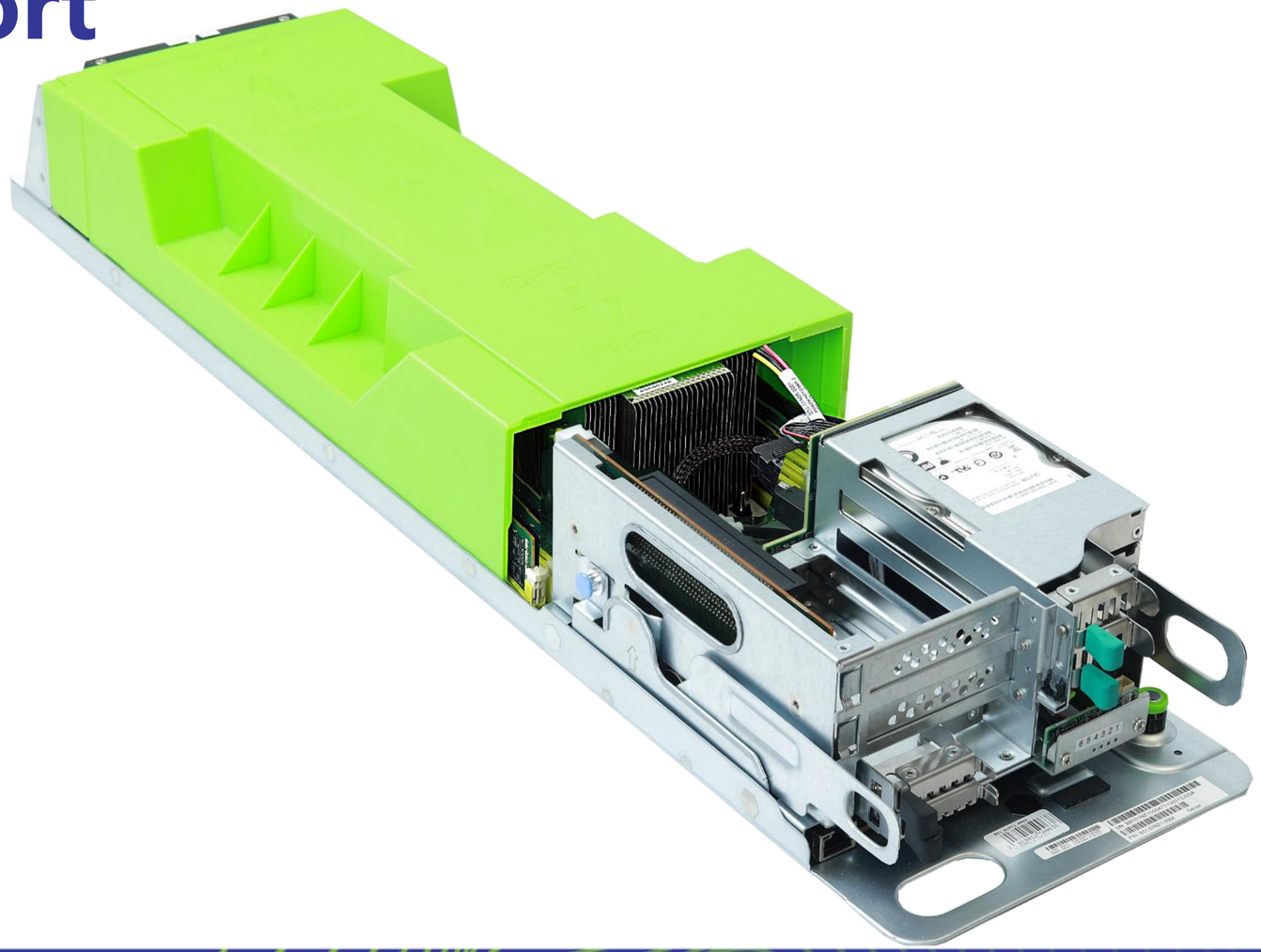
Wiwynn Tioga Pass - OCP Server



OCP Tioga Pass

- Tioga Pass M/B
- FW (BIOS/BMC)
- TPM
- Thermal Solution
- OCP 21” Chassis

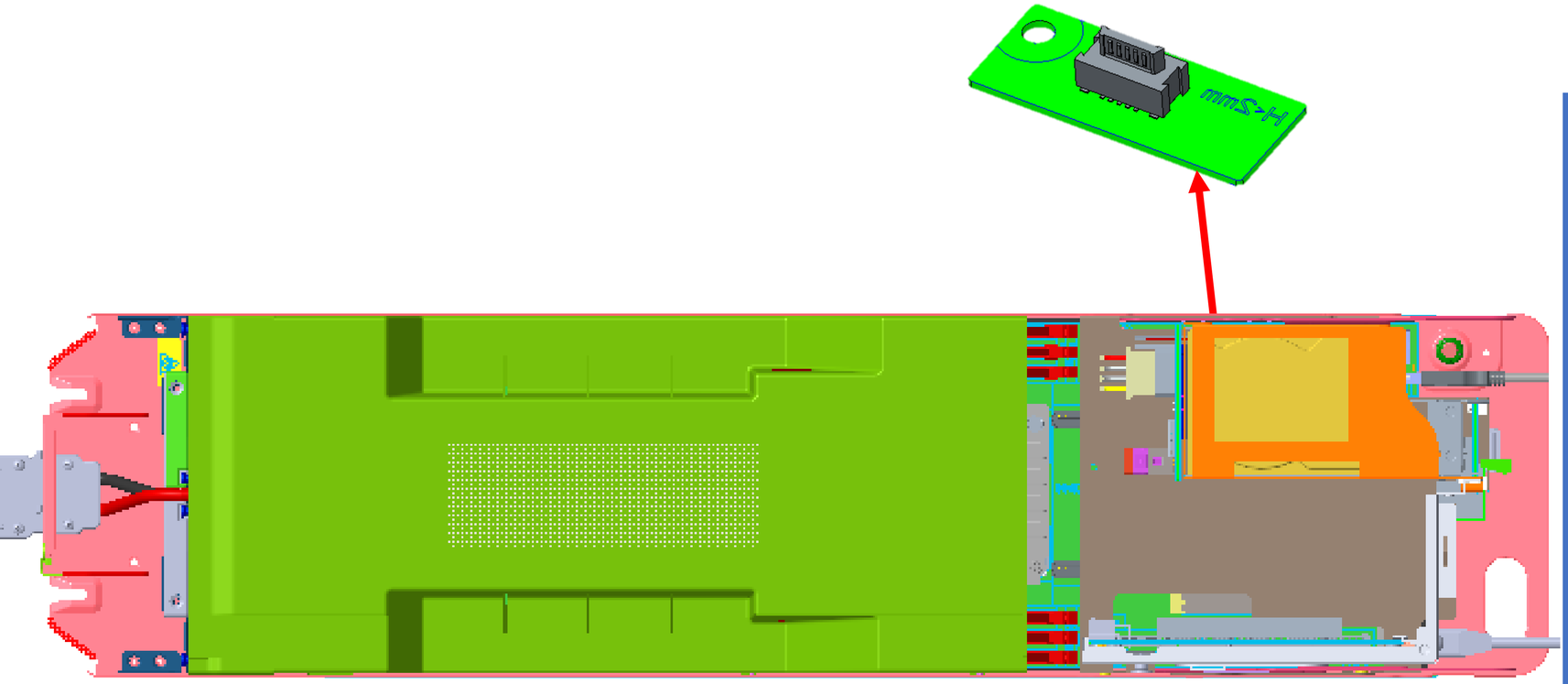
SV7220G3 (Tioga Pass for General Market) – Hot-plug HDD/SSD and Dedicate Management Port



2OU SV7220G3

- Tioga Pass M/B
- FW (BIOS/BMC)
- TPM
- Thermal Solution
- OCP 21” Chassis

SV7220G3 Use the Same PCB and TPM with Tioga Pass



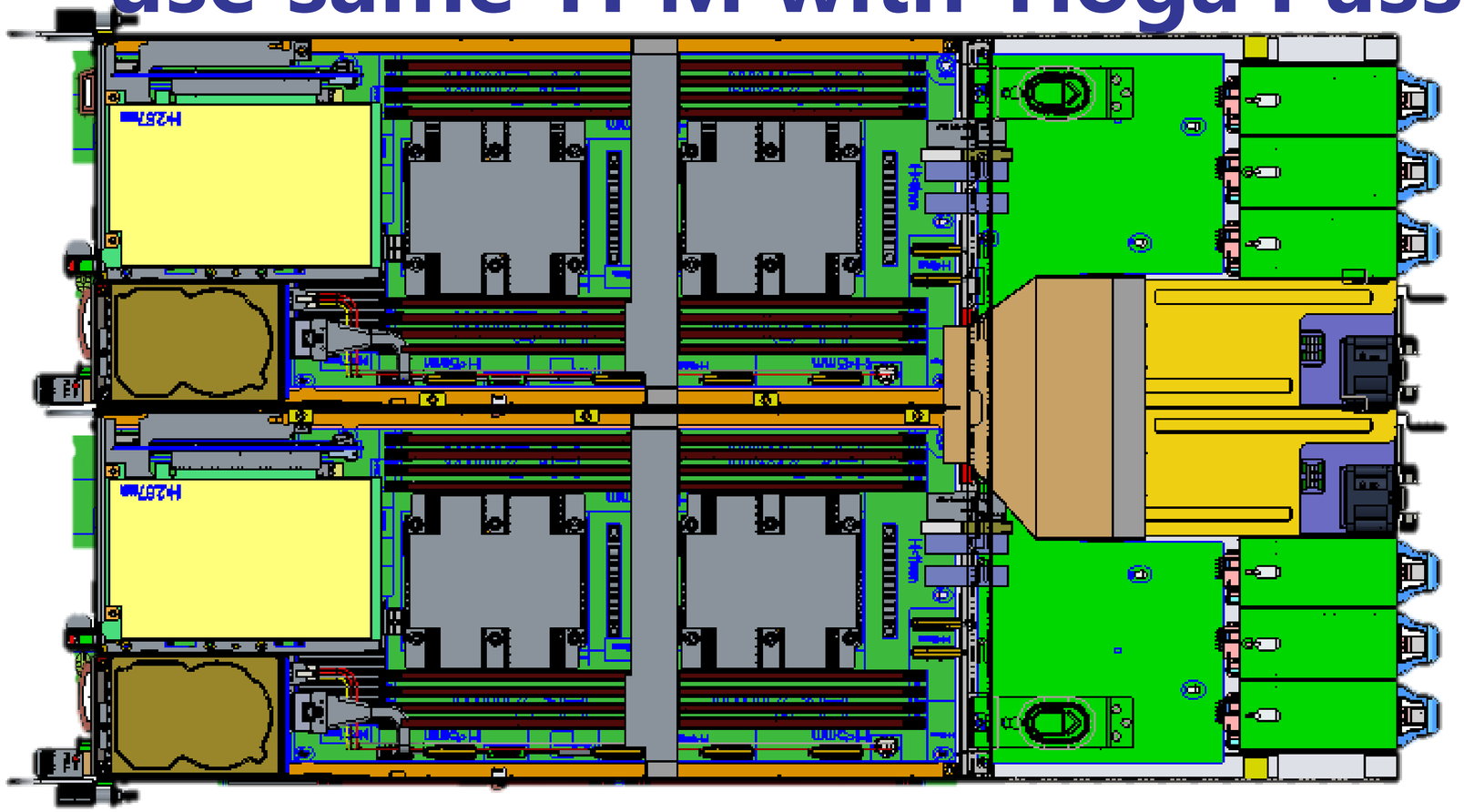
2OU SV7220G3

- Tioga Pass MB
- FW (BIOS/BMC)
- TPM
- Thermal Solution
- OCP 21” Chassis

SV302G3 – EIA 19” 1U2N Server

- EIA 19” 1U SV302G3
  - Tioga Pass Upgrade M/B
  - FW (BIOS/BMC)
  - TPM
  - PDB
  - Thermal Solution
  - EIA 19” Chassis

SV302G3 leverage Tioga Pass MB design and use same TPM with Tioga Pass



EIA 19” 1U SV302G3

- Tioga Pass Upgrade M/B
- FW (BIOS/BMC)
- TPM
- PDB
- Thermal Solution
- EIA 19” Chassis

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Our Technologies for Workload Optimization
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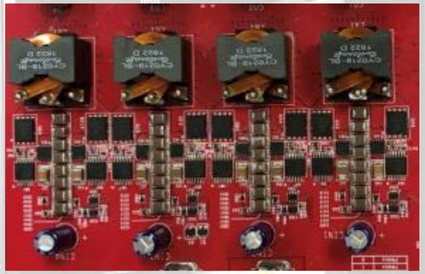
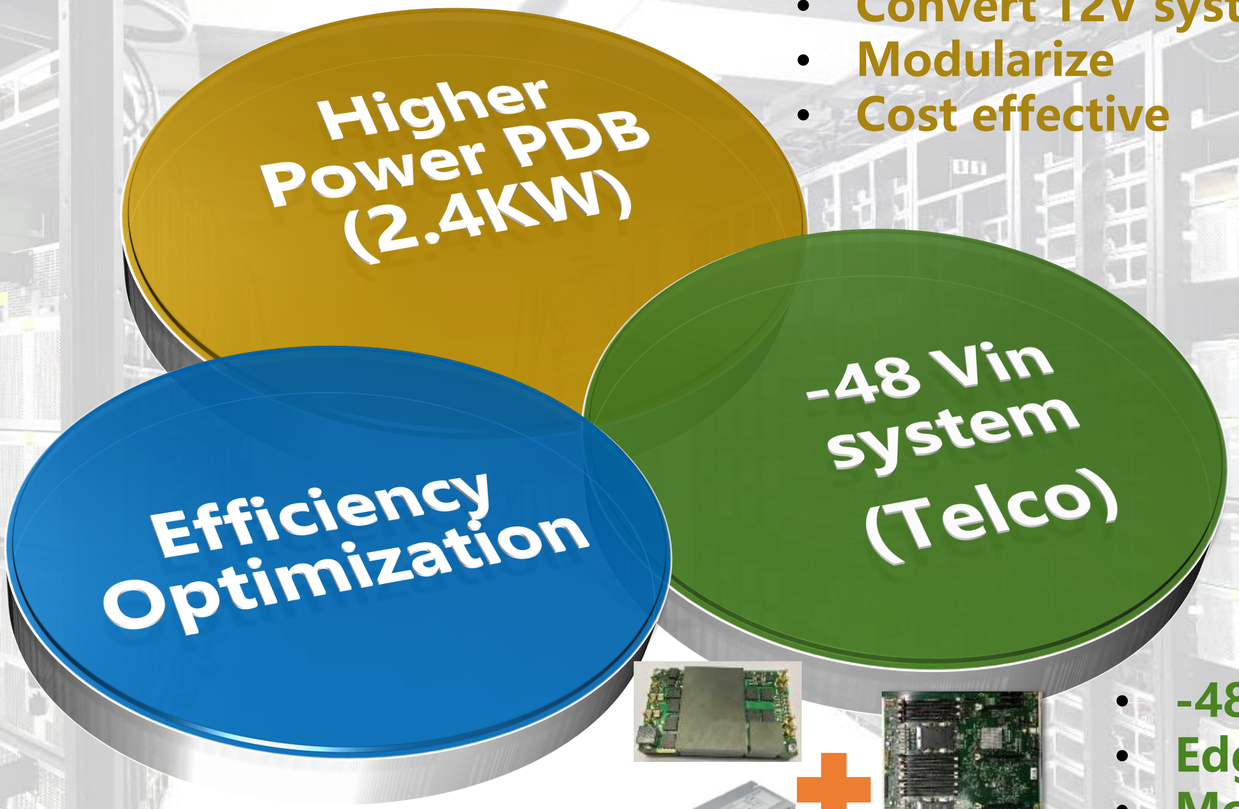
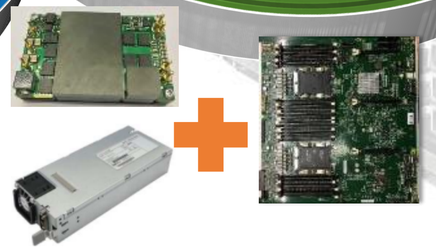
48V Technology Innovation

- High Power, High Efficiency
- Convert 12V systems
- Modularize
- Cost effective





- New 2 stage design concept
- Efficiency improvement @ heavy load
- Cost/Performance



- -48Vin input
- Edge server at Telco CO
- Modularize

Immersion Cooling Technology Strategy

~2017 | 2018 | 2019 | 2020 | 2021~

Prove Immersion Cooling

Optimize Tank for Immersion Cooling

POC with Existing Board

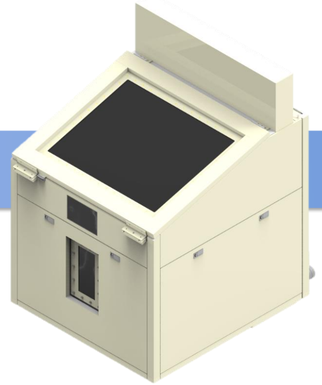
Q2, 2018 – Q4, 2018

POC
Tioga Pass

Benchmarking
Olympus

High Power Tank for Existing Board

Q2, 2019



48V Tank
Tioga Pass
60 kW

White Papers
Q3, 2019

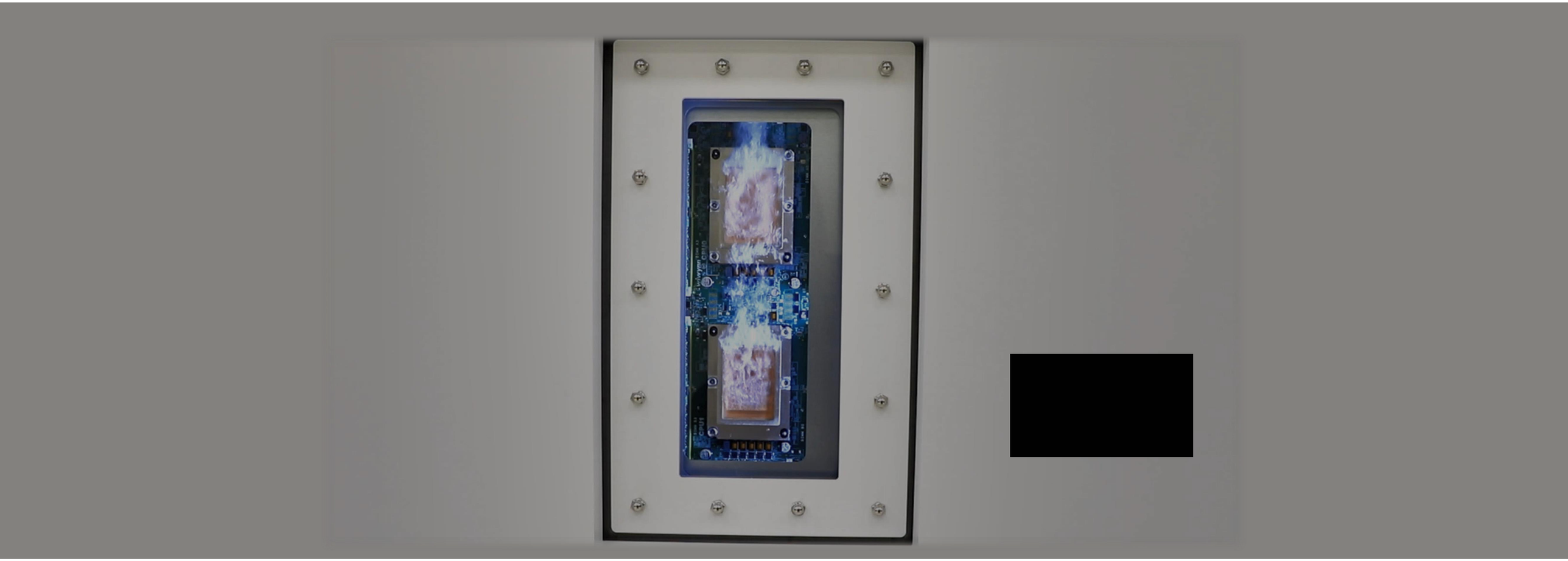
Specifications
Q4, 2019

Tank Next Gen

Q2 2020

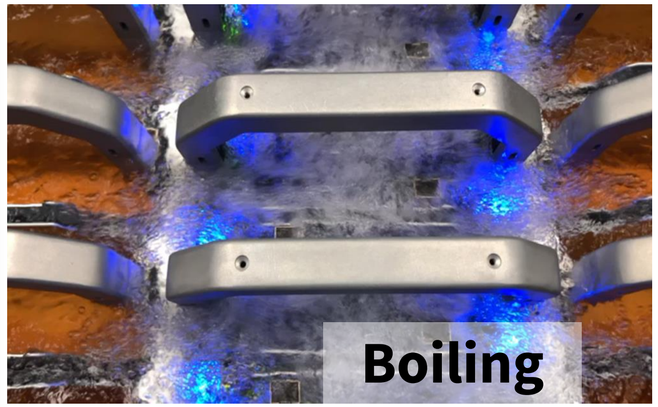
Tank with Optimized Board

Service Oriented 2-Phase Immersion Cooling with 48V Power Solution



Wiwynn 48V Immersion Cooling Solution Advantages

- Two Phase Immersion Cooling for Excellent PUE
- High Efficiency DC 48V Power Delivery System
- Advanced Condenser System for Low Vapor Leakage
- Tool-less Design, Automation, and Friendly UI with Easy Serviceability
- Tank Management for Safety
- Leverage Large Scale Deployed and Field Proven OCP Server Board



Wiwynn Speeches

Date	Time	Project	Topic	Speaker	Location
3/15	8:30am	HW Management	Modeling Immersion Cooling Compatible with OCP Profile	*Shao Yen*	Marriott Salon I&II
	8:40am	Rack & Power	48V 2-stage System Efficiency Optimization by using STC Converter with Dynamic Converting Ratio	*Sam Yang*	210 BF
	2:30pm	Advanced Cooling	Service Oriented 2-Phase Immersion Cooling with 48V Power Solution	*Lentis Pai*	210 E
	3:40pm	Storage	Learning of Designing Project Olympus JBOF with EDSFF SSD	*Mark A. Shaw* *Antson Chang*	212 AB
	4:00pm	HPC & GPU/FPGA	Apply OCP Design Principles to Enhance 19 inch Power-Consuming GPU server	*Gregary Liu*	210 A

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Welcome

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OCP Global Summit 2019. San Jose Convention Center. March 14-15.

Booth A12

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