Company Profile of XSLAB Incorporation

XSLAB 엑세스랩

2025

We are XSLAB

XSLAB 엑세스랩

Korea's First Arm Server Development Company

Low-power, High-efficiency Arm Server

XSLAB has been developing the first low-power many-core Arm server in Korea for over 12 years. As the first Arm server company in Korea, we boast the best technology and expertise covering the entire server industry from hardware to software and cloud. We will stand tall as a global leader.

Contents

XSLAB Introduction

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CEO

Myounghwan Yoo (FunFun Yoo)

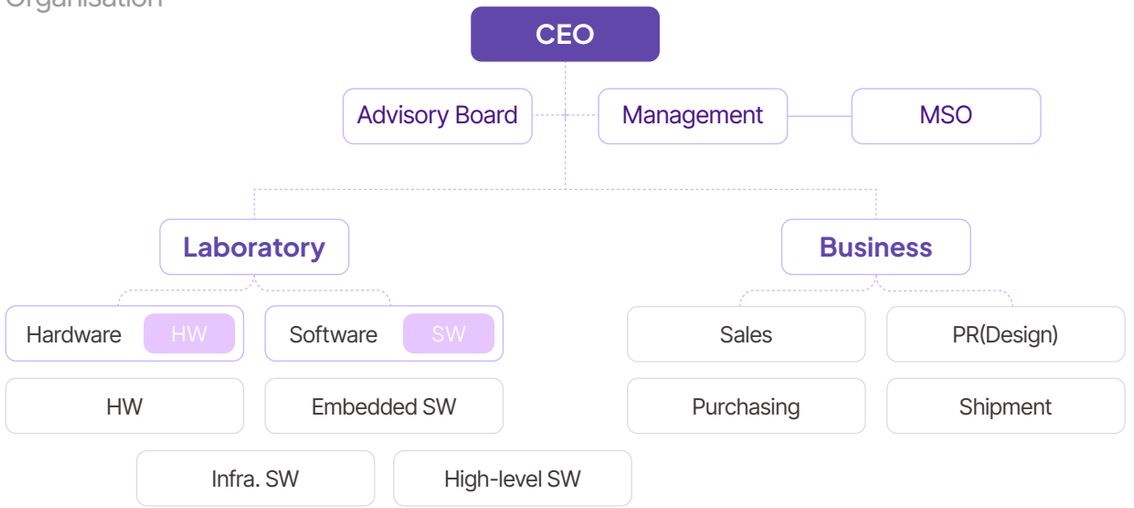
CEO of XSLAB Inc. / Ex. NIRSC Technology Committee Member / Ex. Policy Advisory Committee at Guro-gu, Seoul / Ex. NAVER D2 Startup Factory Mentor / Ex. Adjunct Professor, Department of Software, Hanyang University / Ex. KR SW Maestro Mentor

Members

18s
2025.1. Std.

R&D Members
77.7%

Organisation



Introduction

13 Years to Create a **Truly Korean Server**

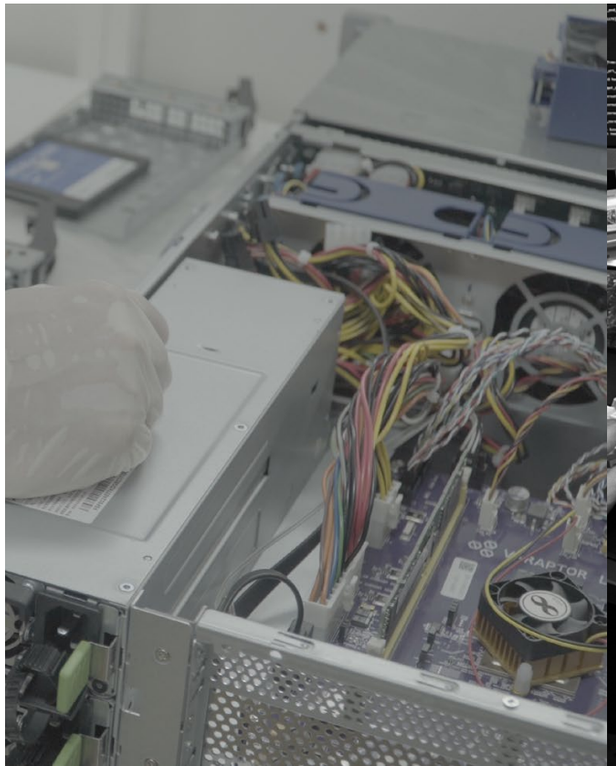
Since 2011, we have been developing motherboards directly and manufacturing them in Korea for the first time. We have secured a stable server production base by establishing partnerships with key players in the value chain.

Arm Server Total Solution **HW & SW**

We can develop and port all software to operate Arm server, from UEFI corresponding to BIOS to OS and device drivers. We develop BMC, essential for remote management, and design and make hardware board (PCB).

From Cloud to Cluster, **Enhance Experiences**

We can directly build and manage clouds such as OpenStack and Kubernetes. We developed software to remotely manage KISTI's super computer cluster, and based on this, also developed software for cluster management.



Introduction

Year
2011
Arm server product development plan, Overseas case analysis

Year
2012
Arm server 1st prototype development, ETRI project related to Arm server

Year
2014
Arm Server 2nd Prototype Development, Announced at NAVER DEVIEW

Year
2015
NAVER Purchase Conditional Project, V-Raptor 1st & 2nd Prototype Development

Year
2018
Establishment of XSLAB, selected as TIPS by the Ministry of SMEs and Startups

Year
2019
Bluepoint Partners, Sunbo Angel Partners Bridge Investment, V-Raptor SQ Official Launch, V-Raptor SQ Delivery to University of Hawaii, USA, KISTI Supercomputer Server Cluster Management Solution Development Contract

Year
2021
Quantum Ventures Korea Pre-A Investment, Kakao Arm Server Development Contract, Kakao Arm Server-based Cloud SW Development Contract

Year
2022
Official online shopping mall opened, SK Broadband ARM-based VDI thin client terminal delivery, Korea South-East Power(KOEN) ARM server delivery and remote integrated management system construction

Year
2023
In Taiwan COMPUTEX Korea's first Arm server exhibition, Sam-A Aluminum ARM server delivery, KATECH Arm server, Arm-based VDI client delivery, Samsung Electronics Arm server delivery

Year
2024
Signed a distribution contract with HS Hyosung Information Systems, supplied Arm servers to Dankook University and Baehwa Women's University, and invested by Hyosung Ventures

Arm Server Full Stack
All-in-one Development Solution

HW

Team

Hardware

Arm server motherboard circuit design/production, Power, memory, storage, communication/network, Display circuit design, Each component structure design

ES

Team

Embedded SW

Arm server UEFI (BIOS), OS, driver (BSP) development/porting, Firmware upgrade and patch function development, BMC SW development, OpenBMC development/porting

HS

Team

High-level SW

BMC, OpenBMC based Back/Front-end SW development, server cluster management SW, OS & App distribution app development

IS

Team

Infrastructure SW

Arm server-based virtualisation SW development and construction, Redundancy (HA) SW, Cloud development and construction (OpenStack, Kubernetes)

Introduction

Investor

SUNBO ANGEL PARTNERS
Quantum VENTURES KOREA
HYOSUNG VENTURES

Partner, Customer

AMPERE.
ABLECLOUD All about data & cloud
ADLINK LEADING EDGE COMPUTING
ACEWORKS
배화여자대학교 BAEWHA WOMEN'S UNIVERSITY
DKU 단국대학교 DANKOOK UNIVERSITY
ex 한국도로공사

GS 리테일
HS 효성인포메이션시스템
UNIVERSITY of HAWAI'I MĀNOA
KiSTi 한국과학기술정보연구원
KATECH 한국자동차연구원
MainIT
MACHBASE

NHN Cloud
NetworkOptix
SAMA 삼아알미늄주식회사
SAMSUNG
SK broadband
SUSE
suprema SECURITY & BIOMETRICS
kakao

SUPERMICRO
season
TmaxSoft
THERAGEN Health
UNIWIDE
(주)연무기술

Business Area

Business Area

Custom Arm Server Development

V-Raptor series Arm server
Special purpose Arm server
Customised HW, SW OEM/ODM

Arm PC-based Display Terminal

Arm PC-based display terminal OEM/ODM
POS, KIOSK, DID, etc. Existing Intel industrial PC Arm migration
Low-power Arm laptop based on Android, Linux, Chromium OS

Cloud based on Arm Server

Arm server-based cloud (OpenStack, Kubernetes) self-build
Customized & dedicated cloud development and build

Arm-based **Private Cloud** BlueShift

Self-built BlueShift as a service
Building on OpenStack and supporting Kubernetes
Various Arm-based instances and subscription basis

Server **Remote Management** SW

Self-developed BMC and firmware update solution
Arm-based industrial terminal and dedicated SW
Customised & dedicated SW development and supply

Edge AI on Low-power AI Chips

Development of low-power edge AI Arm server
AI chip-based module solution for computer vision
OEM/ODM with AI chip companies

Business Area

We are building **Arm-based servers that deliver high performance with low power** consumption and generate little heat, eliminating the need for cooling devices.

v-raptor Altra

V-Raptor Altra can operate up to 128 high-performance cores by selecting Ampere Altra or Altra Max processors.

128 Max Core

16 Memory Slots

V-Raptor Altra, 2U Rackmount Form Factor Chassis

- Single Socket, Ampere® Altra®/Altra Max®, up to 3.0GHz 64bit & 128-Core Configuration
- 16x Slot, DDR4 RDIMM up to 3200MHz,
- AR208 : 8x 2.5”/3.5” SAS/SATA Hot Swap Slots
  AR212 : 12x 2.5”/3.5” SAS/SATA Hot Swap Slots
  AR225 : 25x 2.5” SAS/SATA Hot Swap Slots
- 2x PCIe Gen4 x8, 3x PCIe Gen4 x16
- 2x USB 2.0 (Rear), 1x USB 3.0 (Rear), 2x USB 3.0 (Front)
- 1x RJ45 LAN, 1x RJ45 MLAN
- Dual 800W Redundant PSUs, -
- ASPEED® AST®2500 BMC, w. XMAS™

433*87.6*695, mm

v-raptor Altra *work*station

V-Raptor Altra can operate up to 128 high-performance cores by selecting Ampere Altra or Altra Max processors.

128 Max Core

16 Memory Slots

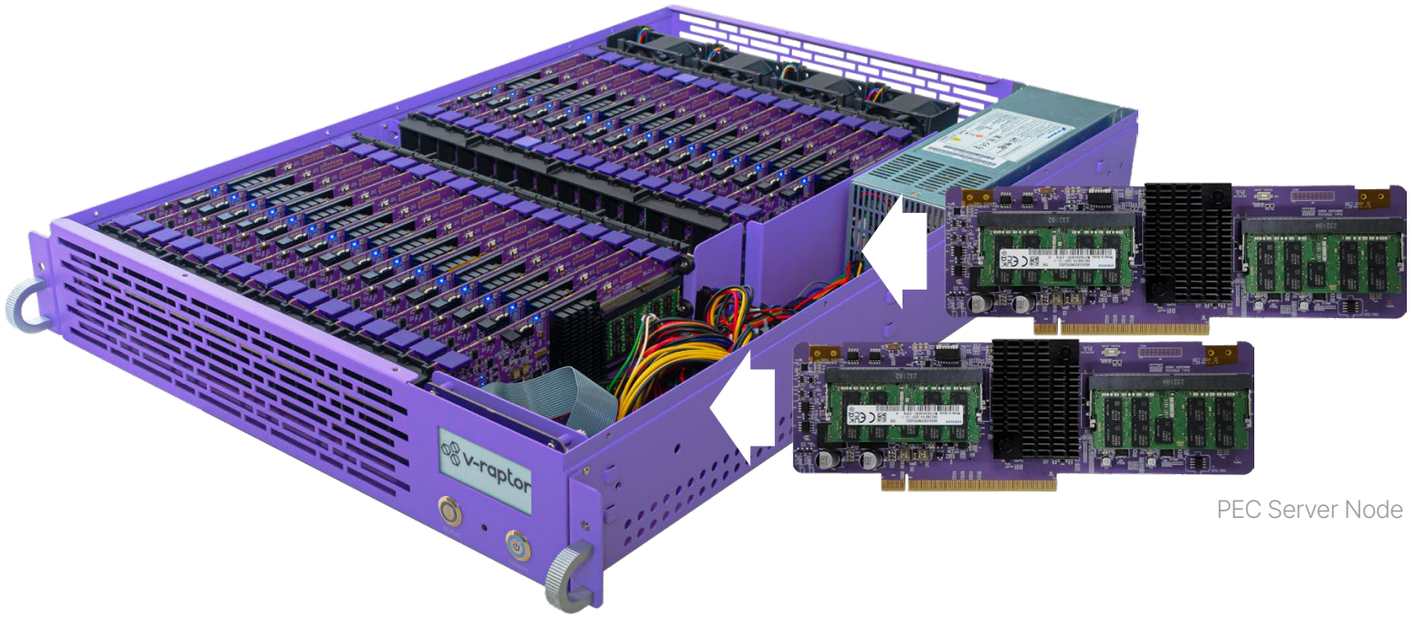
V-Raptor Altra, 4U Tower Form Factor Chassis

- Single Socket, Ampere® Altra®/Altra Max®, up to 3.0GHz 64bit & 128-Core Configuration
- 16x Slot, DDR4 RDIMM up to 3200MHz,
- 2x 3.5”(or 3x 2.5”) SATA/SAS Slots 4x 2.5” SATA/SAS Slots
- 2x PCIe Gen4 x8, 3x PCIe Gen4 x16
- 2x USB 2.0 (Rear), 1x USB 3.0 (Rear), 2x USB 3.0 (Front)
- 1x RJ45 LAN, 1x RJ45 MLAN
- Dual 800W Redundant PSUs, -
- ASPEED® AST®2500 BMC, w. XMAS™

444*176.5*468, mm

v-raptor SQ

This blade server can accommodate up to 32 PEC server nodes, delivering total 768 cores at PC-level power (600W).



PEC Server Node

V-Raptor SQ(SQMP), 2U 19” Chassis

- i.MX6Q BMC, Arm® Cortex-A9 4-Core SoC w. XMAS™
- 1x 1GbE LAN for Remote Management
- 2x USB 2.0 (BMC), 1x micro-USB (Debug), 2x RJ45
- Dual 800W Redundant PSUs, 80 PLUS PLATINUM

V-Raptor PEC Server Node (up to 32 Implementation)

- Socionext SynQuacer™ SC2A11, Arm® Cortex-A53 1GHz 64bit 24-Core SoC
- 2x Slot, DDR4 ECC SODIMM 2333MHz, up to 32GB (per node)
- 1x Slot, M.2 NVMe, up to 1TB (per node)
- 1x 1GbE LAN SoC (per node)
- Average 15W Power Consumption (per node)

768 Max Cores

600 Power Consumption(W)

440*650*85, mm

v-raptor LX

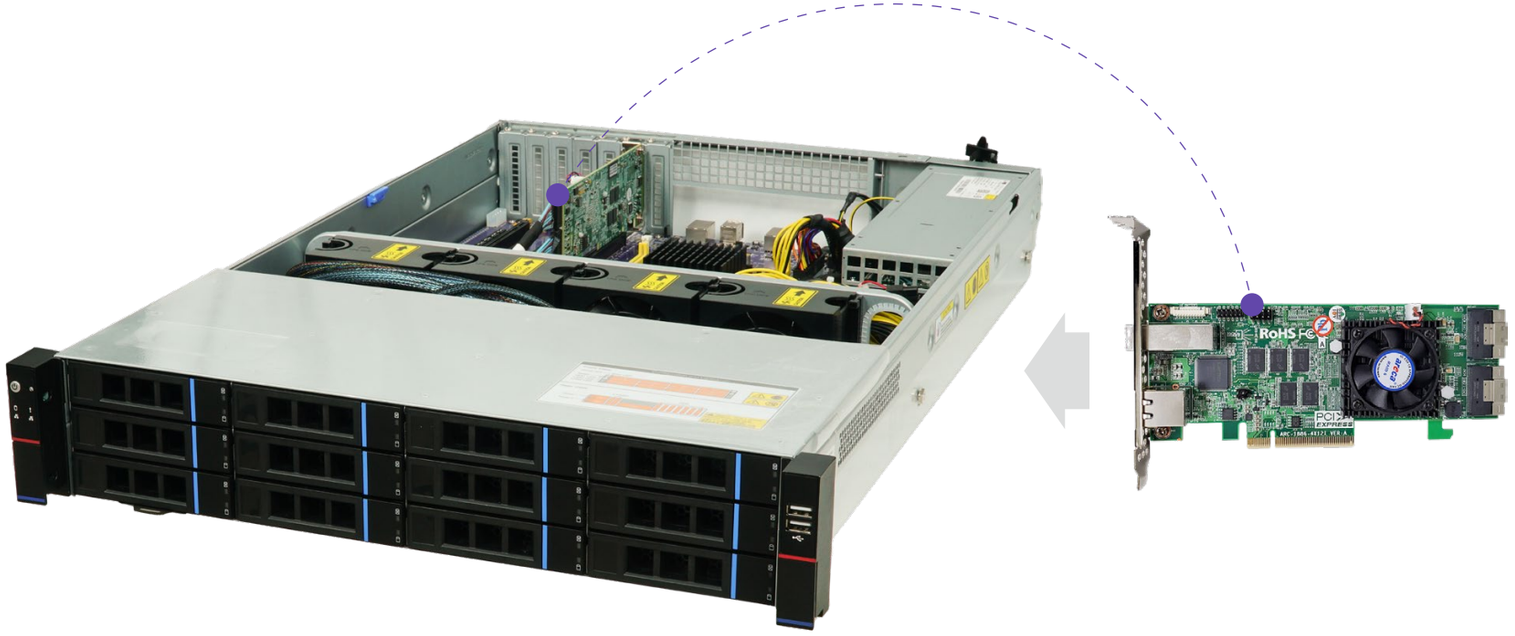
This storage server can handle over 200TB of data with 12 SATA/SAS drive bays and RAID cards.

12 Max SATAs

200+ Max Capacity(TB)

V-Raptor LX, 2U 19” Chassis

- LXP LayerScape™ LX2160A, Arm® Cortex-A72 2.2GHz 64bit 16-Core SoC
- 2x Slot, DDR4 RDIMM 3200MHz, up to 128GB
- Front : 12x 2.5” or 3.5” SATA 3.0 & SAS Slots
  Internal : 2x 2.5” SATA 3.0 Slots
- 2x PCIe Gen3 x8 (x16 Slot), 1x PCIe Gen3 x4 (x16 Slot)
- 2x USB 2.0 (BMC), 1x USB 3.0 (Rear HOST), 1x USB 3.0 (Front HOST), 1x micro-USB (Debug)
- 1x 1GbE LAN (HOST), 1x 1GbE LAN (BMC)
- Dual 1200W Redundant PSUs, 80 PLUS PLATINUM
- i.MX6Q BMC, ARM® Cortex-A9 4-Core SoC w. XMAS™



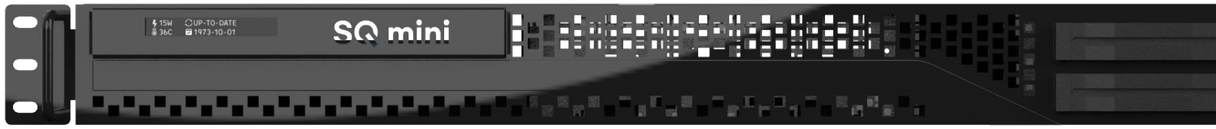
444*670*87, mm

v-raptor SQ mini

This 1U sized standalone edge server can operate up to 100 video management systems.

24 Total Cores

60 Power Consumption(W)



V-Raptor SQ mini, 1U 19” Chassis

- Socionext SynQuacer™ SC2A11, Arm® Cortex-A53 1GHz 64bit 24-Core SoC
- 4x Slot, DDR4 RDIMM 2133MHz, up to 64GB
- Front : 2x 2.5” SATA 3.0 Slots
- 1x PCIe Gen2 x4 (x16 Slot)
- 2x USB 2.0 (BMC), 1x micro-USB (Debug), 2x RJ45
- 1x 1GbE LAN (HOST), 1x 1GbE LAN (BMC)
- Single 265W Flex ATX, 80 PLUS BRONZE
- i.MX6Q BMC, ARM® Cortex-A9 4-Core SoC w. XMAS™

430*383*44, mm

v-raptor SQ nano

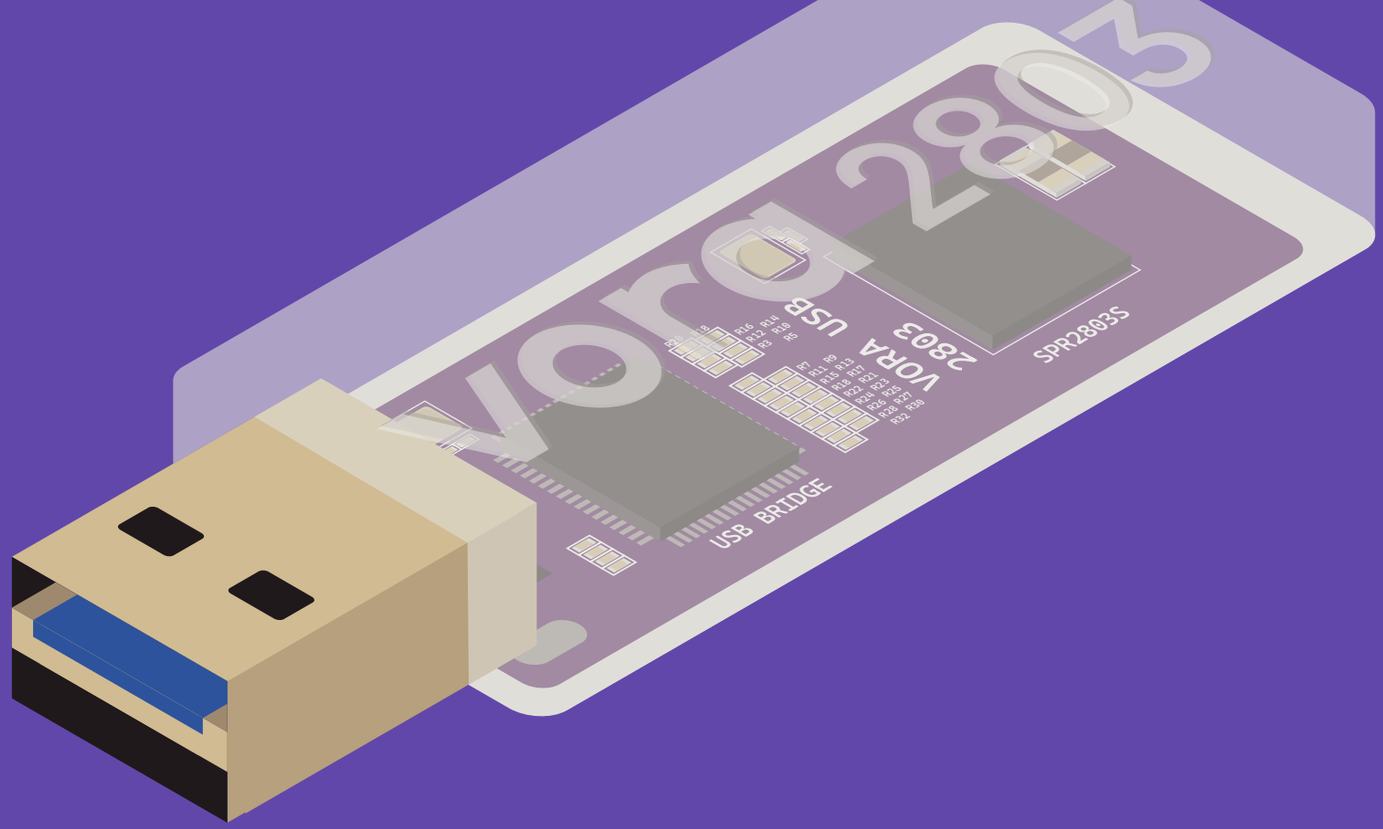
This personal Arm workstation is a palm-sized personal device offers all of server functions.

24 Total Cores

19 Width(cm)

V-Raptor SQ nano

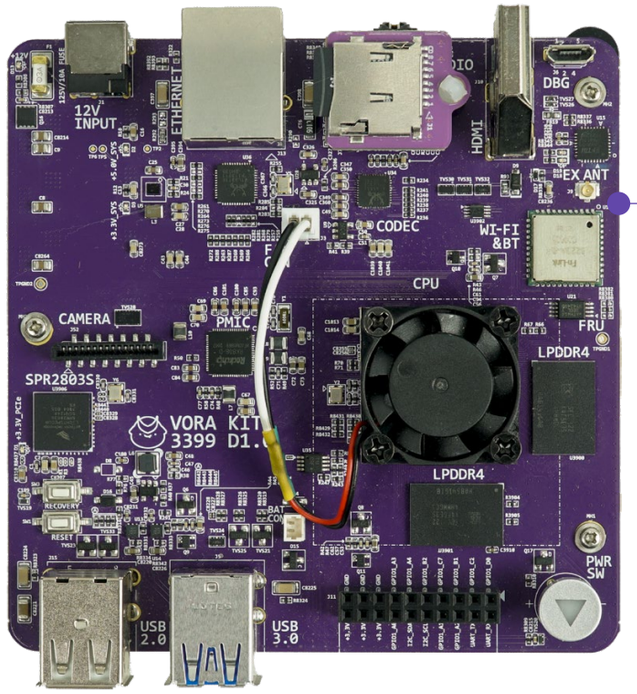
- Socionext SynQuacer™ SC2A11, Arm® Cortex-A53 1GHz 64bit 24-Core SoC
- 2x Slot, DDR4 ECC SODIMM 2133MHz, up to 32GB
- Internal : 1x M.2 NVMe Slot, up to 1TB
- 1x PCIe Gen2 x4 (x16 Slot)
- 4x USB 3.0, 1x mini-USB (Debug), 1x RJ45
- 1x 1GbE LAN
- DC 12V, 2A Power Adapter KC-Certified
- 193*169*33, mm, Fits on the hand



And, we are making ultra-small edge AI products.
The GTI SPR2803S NPU mounted here boasts
16.8TOPS performance **at 0.7W** ultra-low power.

16.8
Max TOPS

vora Ai 3399 Kit



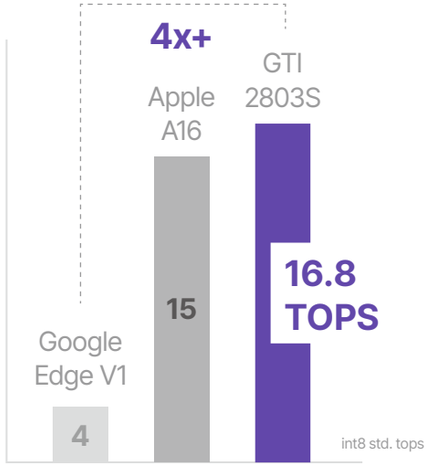
Board-type AI Development Kit

- Gyrfalcon Inc. Lightspeeur® 2803S, 16.8TOPS @ 0.7W
- Rockchip Inc. RK3399,
  Arm® Cortex-A72 1.8GHz 64bit 2-Core
  Arm® Cortex-A53 1.4GHz 64bit 4-Core
- LPDDR4 1866MHz 4GB On-board

USB-type AI Inference Dongle

- Gyrfalcon Inc. Lightspeeur® 2803S, 16.8TOPS @ 0.7W

vora 2803



Primary Technologies

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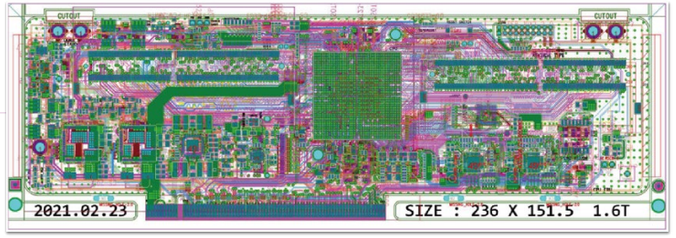
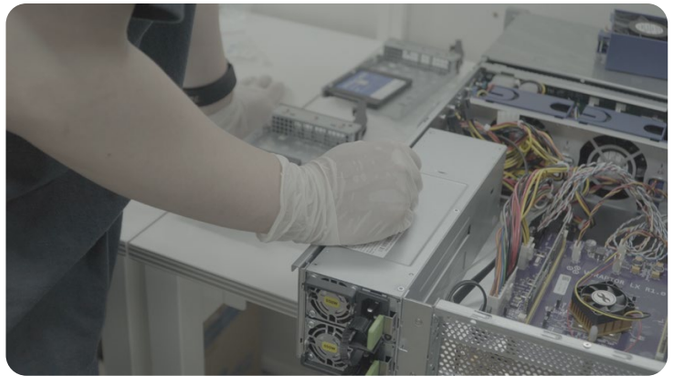
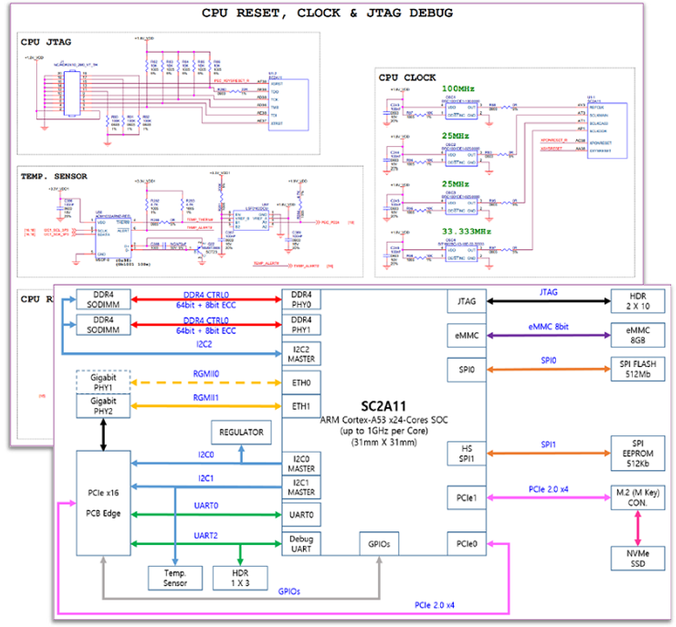
Product Circuit (PCB) Design and Production

PCB layout
Circuit design

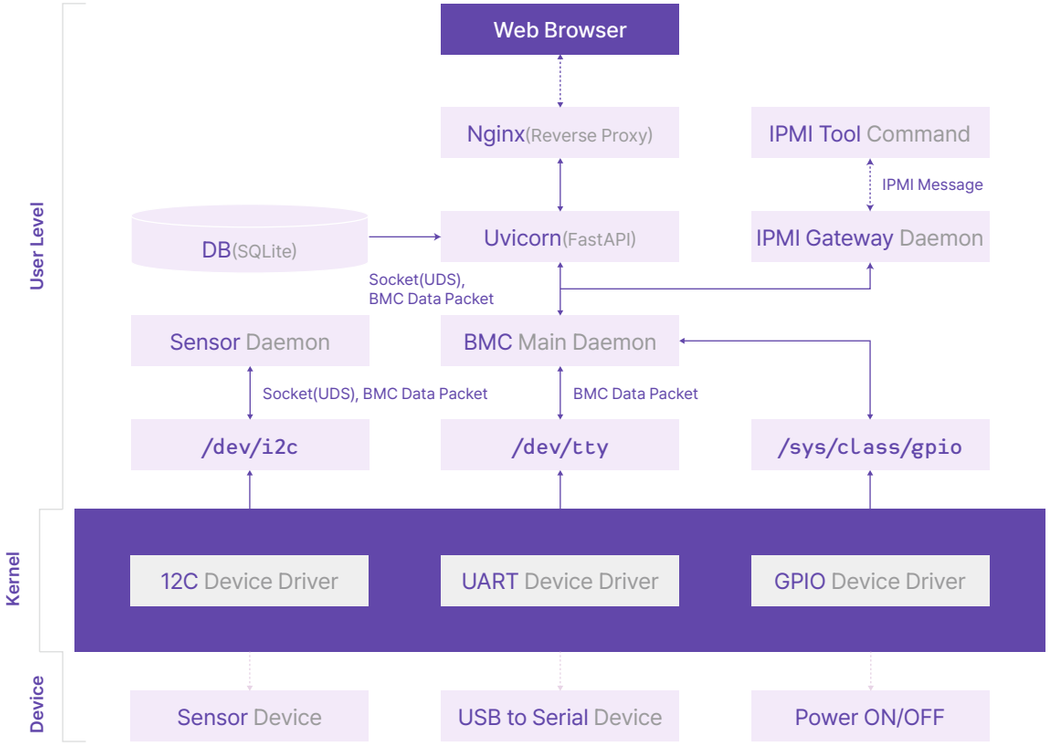


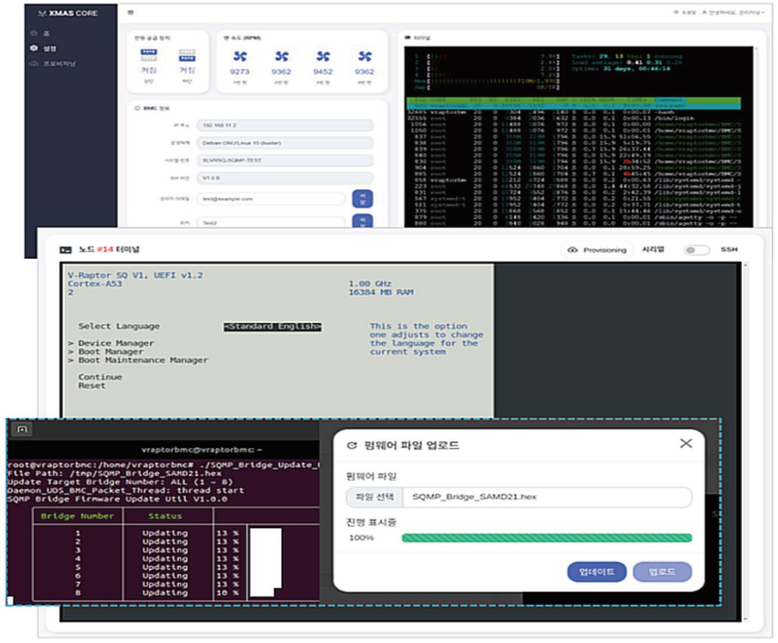




With the ability to design and develop everything from hardware to software, we can provide quick response and service, and also can customise products as customers want.

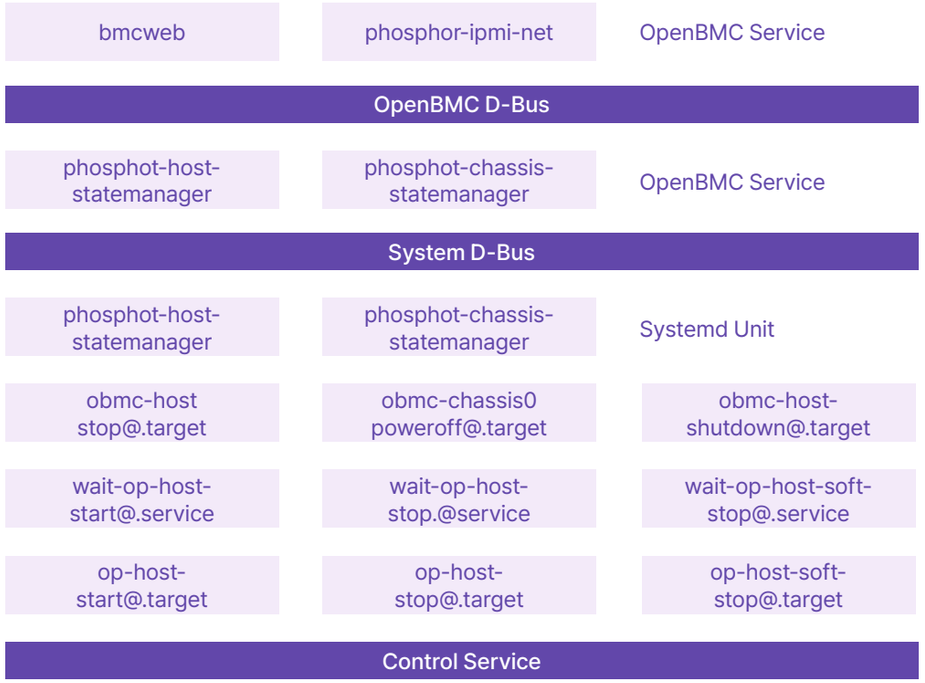
Self-developed BMC for Remote Server Management

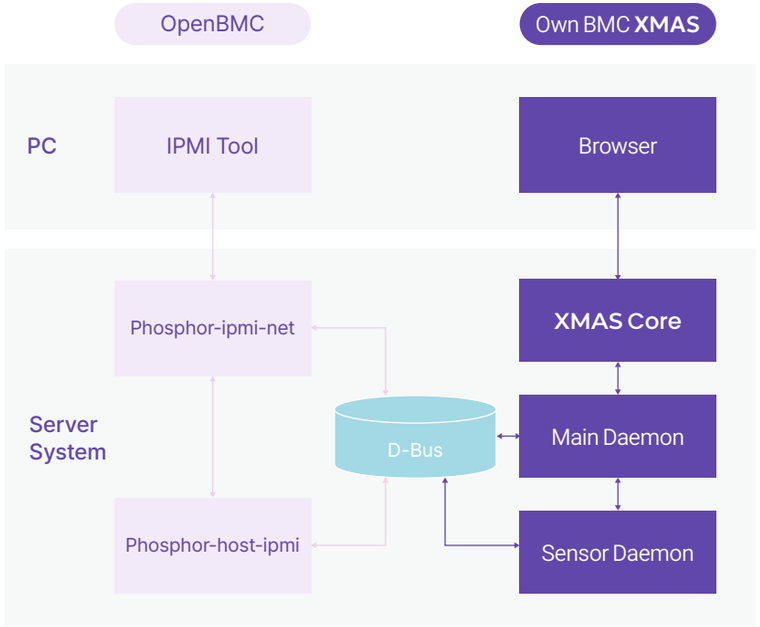




Easy and convenient customisation is possible, and remote execution of operating system distribution and updates is possible. It can be restored to a desired point in time or initial state, and can also be managed with a mobile.

OpenBMC Porting & Own BMC Integration technology

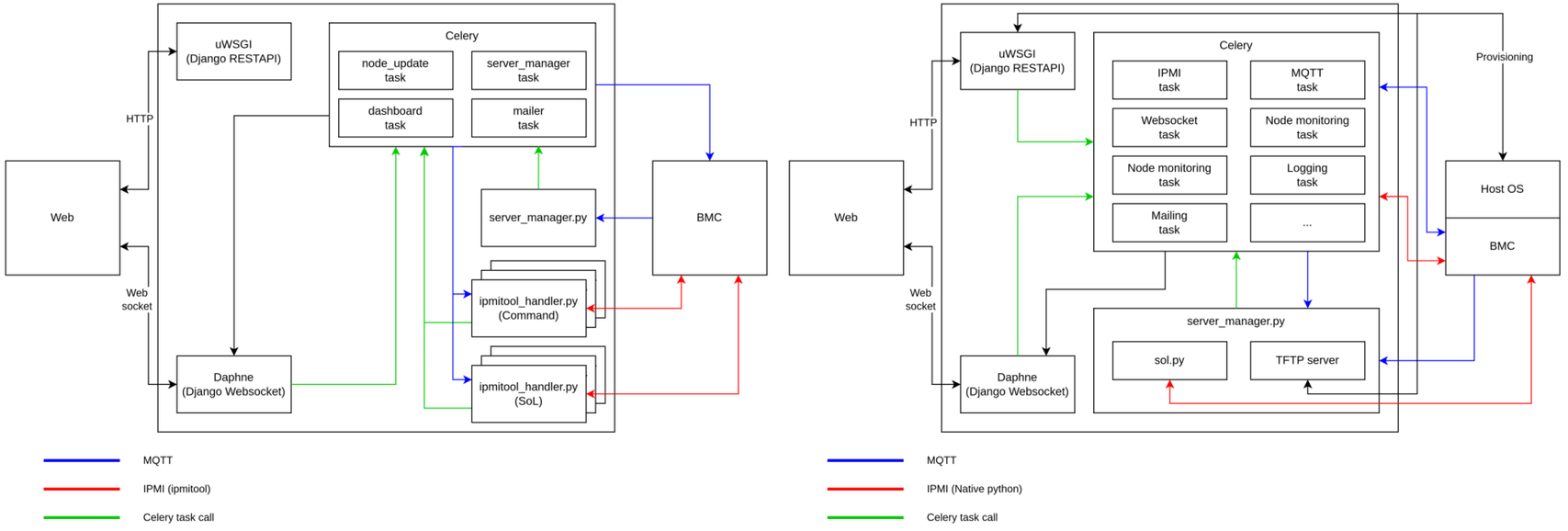




XSLAB is the first in Korea to apply OpenBMC, which was initiated by Meta,
to a real-use product and is producing an OCP standard server.

OpenBMC

Development of Remote Management SW for Heterogeneous Server Clusters

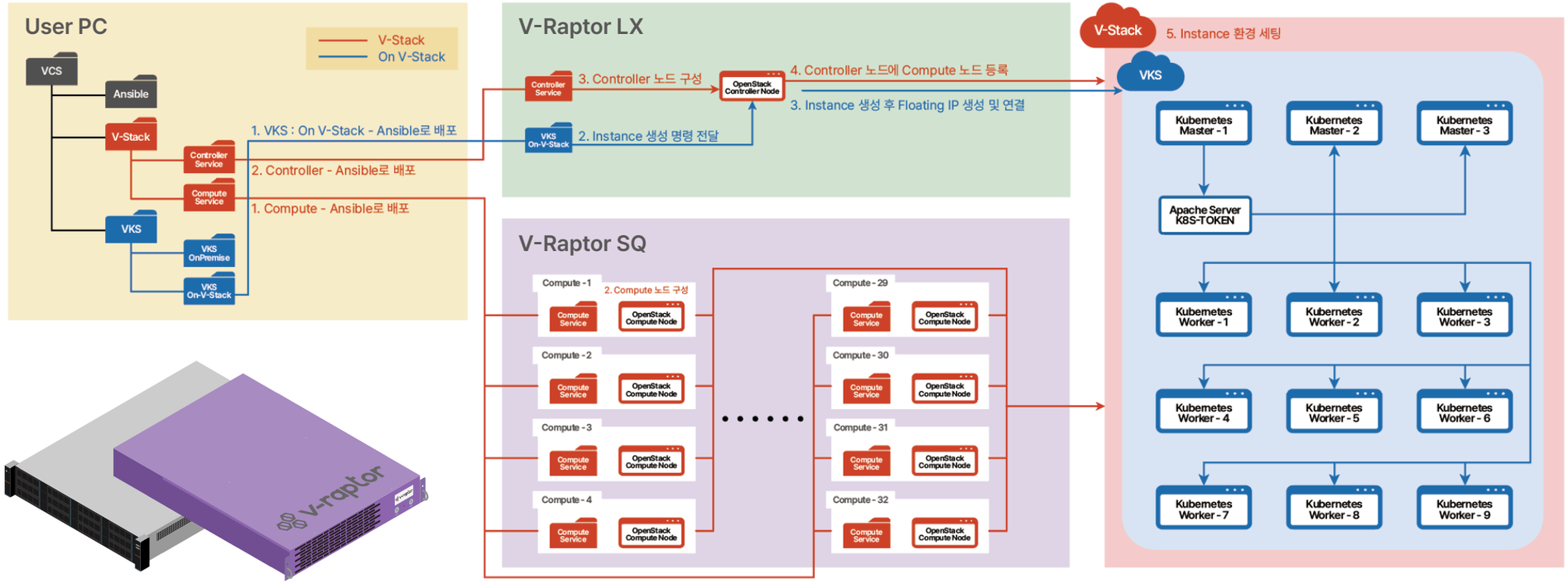


HW status monitoring and management SW

Cluster configuration & OS deployment management SW

Together with KISTI, we are localising overseas solutions for supercomputer cluster management, monitoring the status of heterogeneous servers that make up supercomputers in real time, and applying to cloud infrastructure.

Arm Server-based Virtualisation & Cloud Deployment Technology



We are making Arm server-based virtualisation technology utilising hypervisor-based virtual machines and Linux containers, and building an on-premise cloud service based on Kubernetes with ARM servers.

Business References

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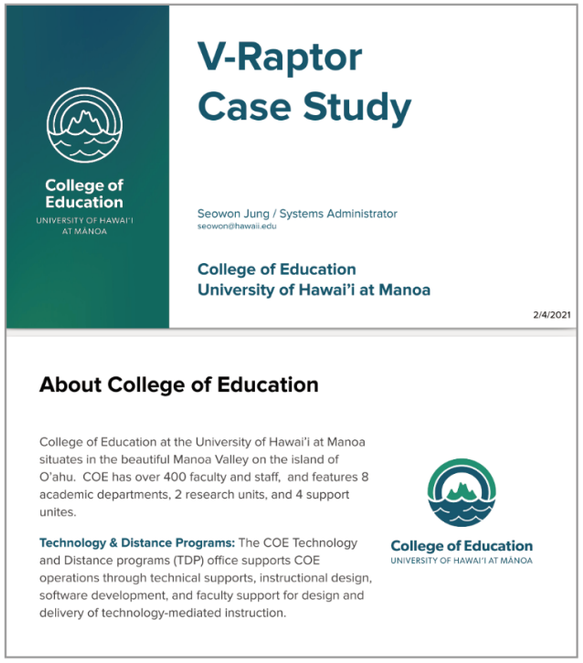
Delivery & Construction of Arm Servers at the University of Hawai'i, USA


College of Education
UNIVERSITY OF HAWAI'I AT MĀNOA

V-Raptor Case Study

Seowon Jung / Systems Administrator
seowon@hawaii.edu

College of Education
University of Hawai'i at Manoa

2/4/2021

About College of Education

College of Education at the University of Hawai'i at Manoa situates in the beautiful Manoa Valley on the island of O'ahu. COE has over 400 faculty and staff, and features 8 academic departments, 2 research units, and 4 support unites.

Technology & Distance Programs: The COE Technology and Distance programs (TDP) office supports COE operations through technical supports, instructional design, software development, and faculty support for design and delivery of technology-mediated instruction.

College of Education
UNIVERSITY OF HAWAI'I AT MĀNOA


The Solution

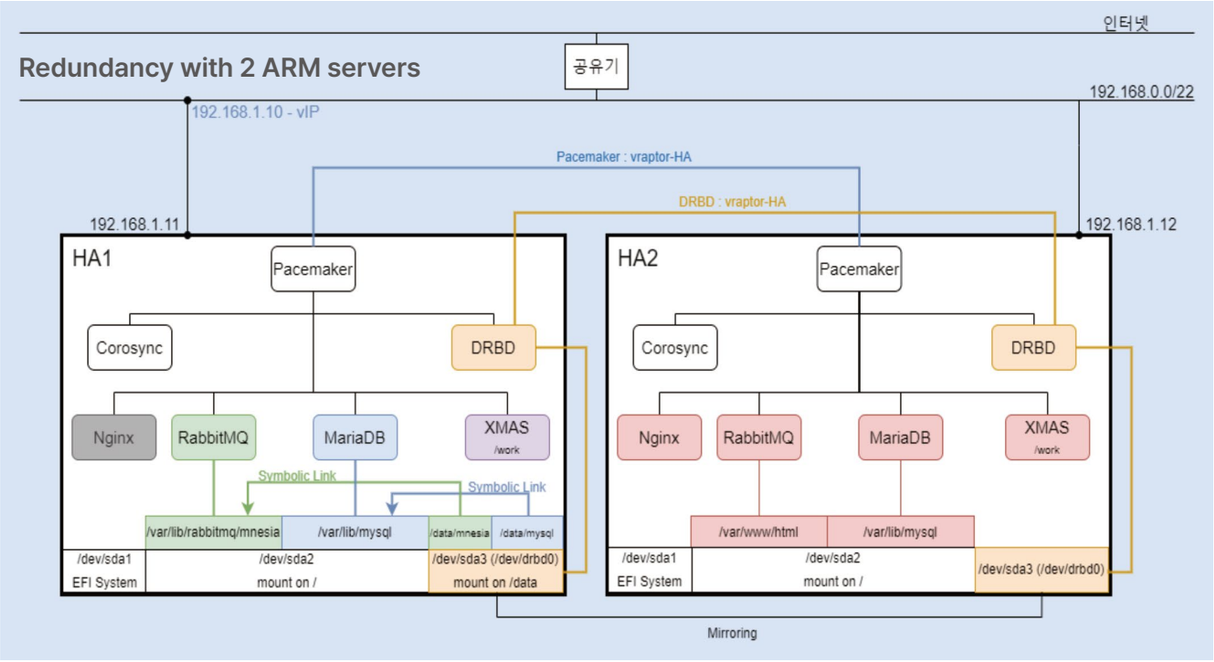
V-Raptor: COE decided to purchase the V-Raptor SQ with 5 nodes for infrastructure services only. Infrastructure services are mission-critical which is essential to the operation of the college to provide professional IT services and environment.

Software: Most of modern Linux distros support ARM-based binary packages. We verified that a lot of Linux distros support ARM platforms. Since XSLAB Inc. officially supports Ubuntu, operating OpenLDAP, Bind, and ISC-DHCP on V-Raptor are not an issue for me.

SIZING: We decided to move our own OpenStack Cloud to the Central IT Team at the data center which can be managed by the data center technicians. V-Raptor also can run and operate OpenStack properly, but we focused on running infrastructure services same as Intel-based servers due to the budget issue.

In 2019, the V-Raptor SQ was delivered to the University of Hawaii in the United States, and its technical prowess and stability have been proven, and additional deliveries and maintenance are underway in 2022.

Delivery & Construction of Arm Servers at KOEN (Korea South-East Power)

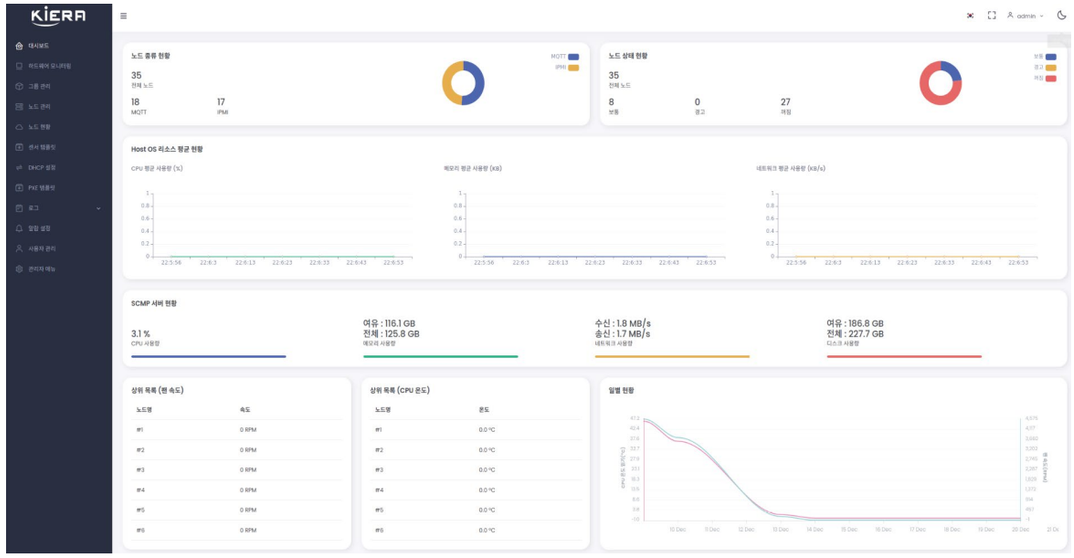


↑ Linux-based VDI management tool

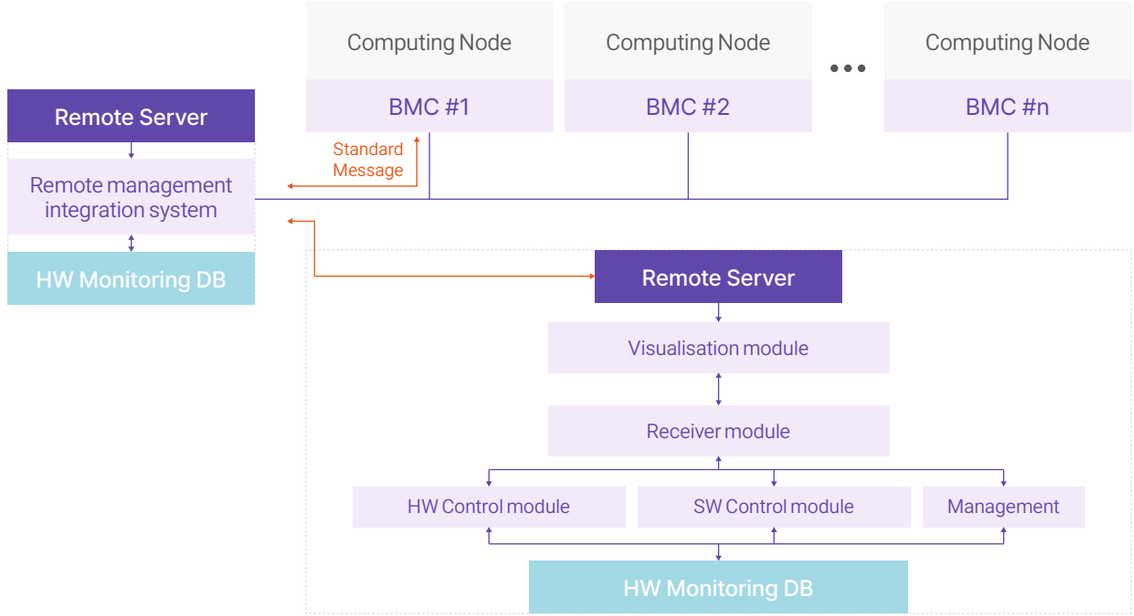
We delivered and built customised VDI thin client terminals and VDI access software development and remote management ARM servers for KOEN together with SK Broadband.

STC1000 v-raptor SQ mini

Development of KISTI Supercomputer Cluster Remote Management Solution



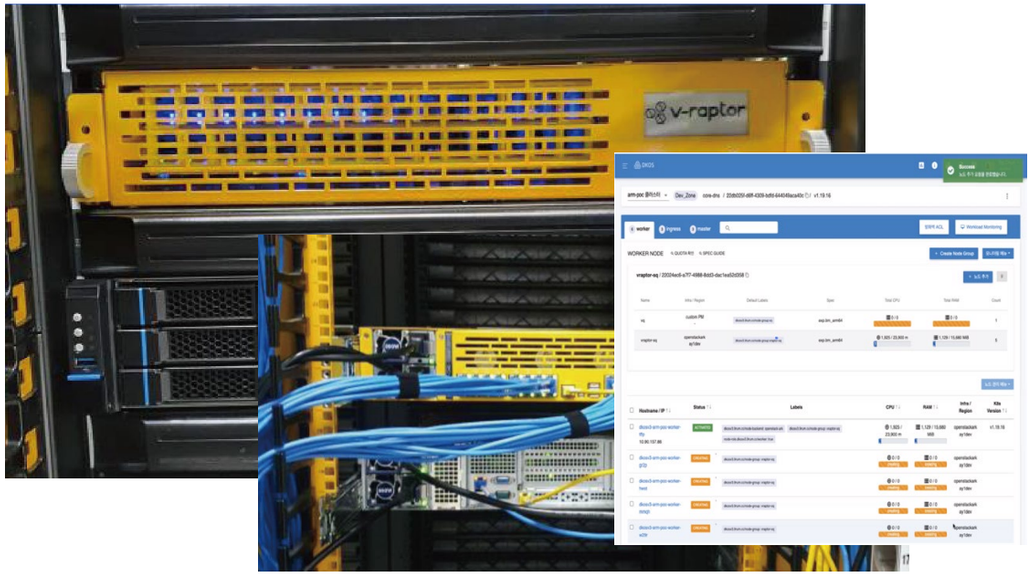
↑ Cluster management SW

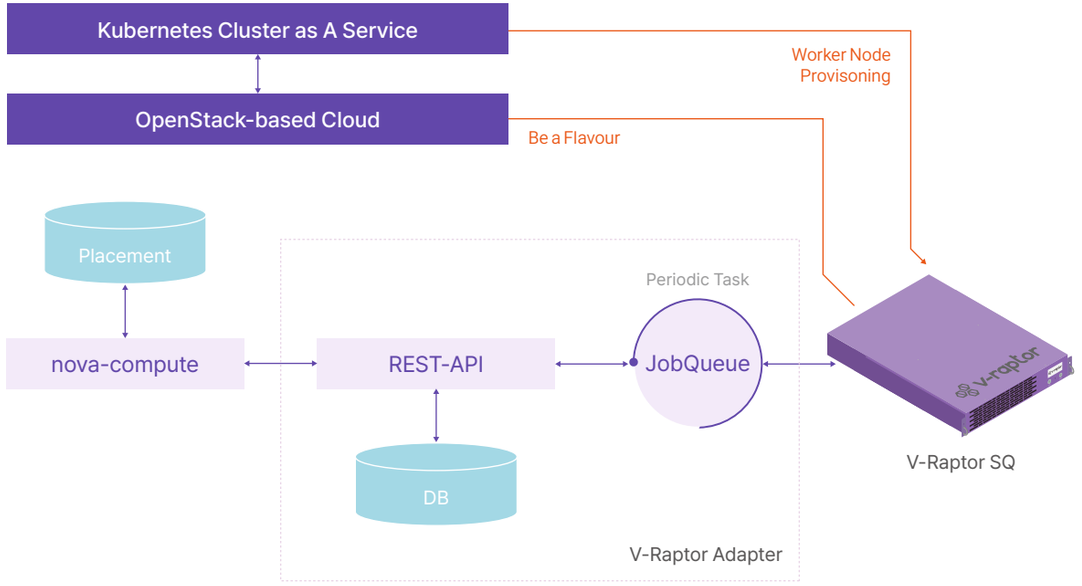


KiERA is a SW developed to remotely monitor and manage the hardware functions of high-performance server nodes, collect, analyse, and manage the status information of each node's hardware based on BMC, and perform efficient remote processing.

Arm Server Delivery & Infrastructure Registration for Kakao Mobile Cloud

kakao

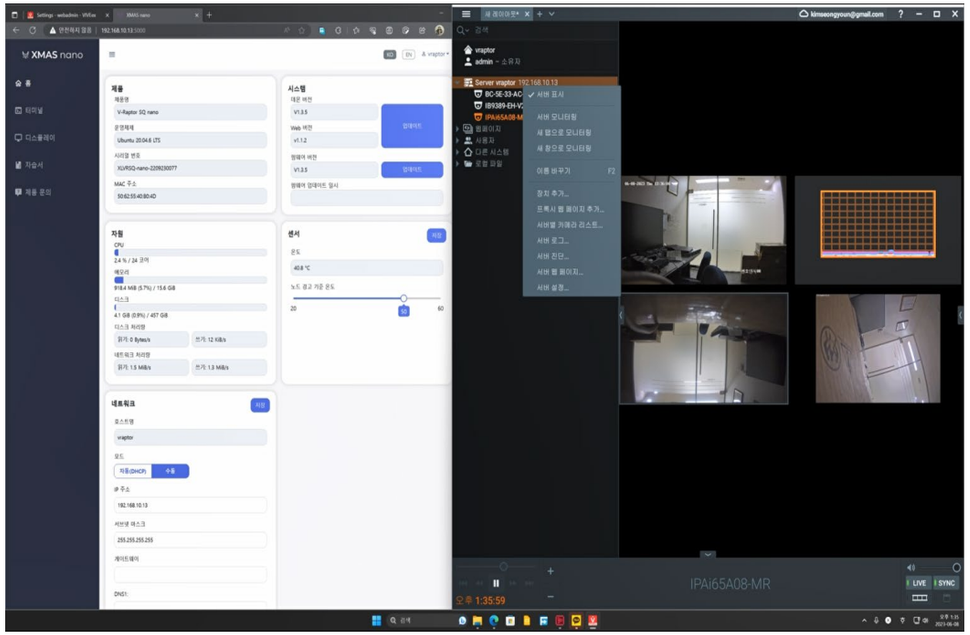




We delivered the V-Raptor SQ in yellow, the Kakao brand color, for Kakao Mobile Cloud and registered the Arm server product in Kakao Cloud Infrastructure.

v-raptor SQ

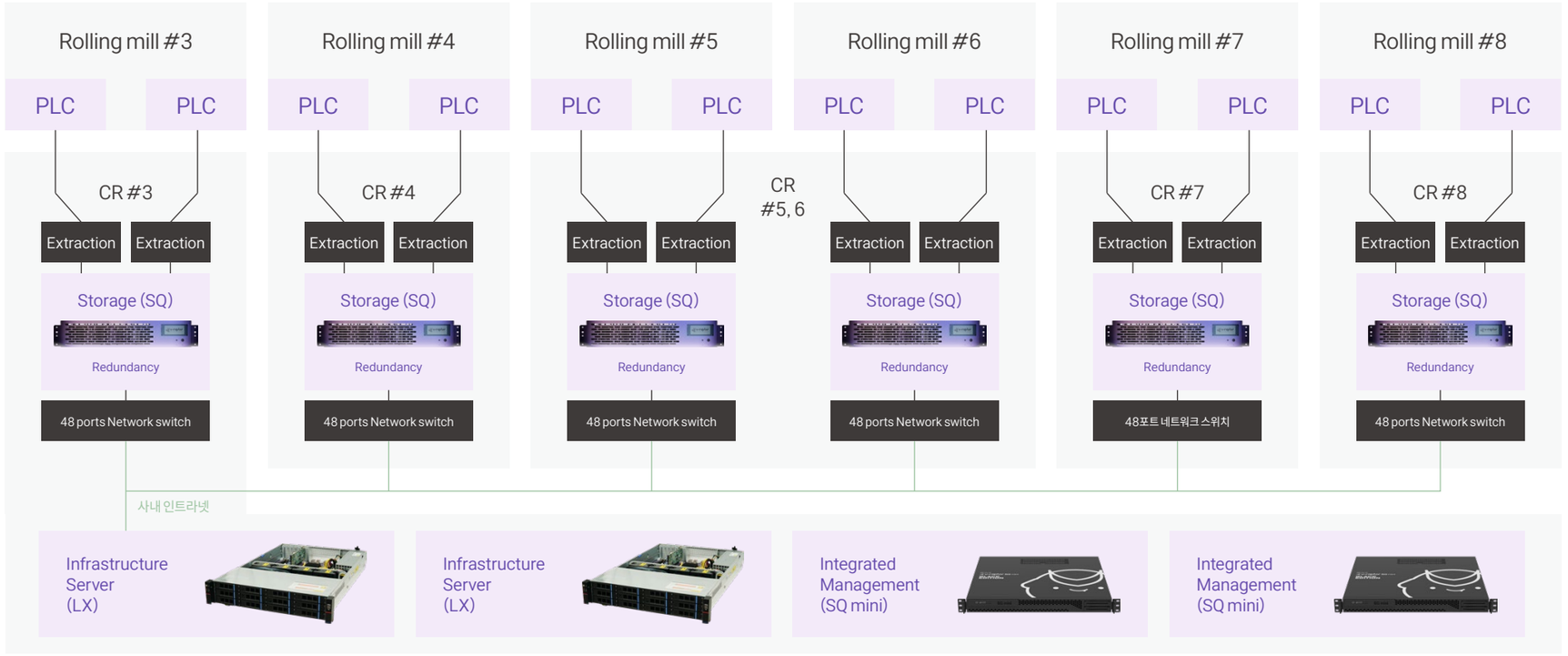
Edge Arm Server with Network Optix’s CCTV Video Management Solution



VIVEex, a localized version of Network Optix's NX solution, can run on V-Raptor SQ nano and V-Raptor SQ mini servers quickly and without interruption, and can stably connect 100 CCTV cameras.
In the case of SQ, if all 32 PEC nodes are installed, more than 3,000 CCTV cameras can be connected.

Delivery & Construction of Arm Servers at SAMA Aluminum for Smart Factory

SAMA
삼아알미늄주식회사

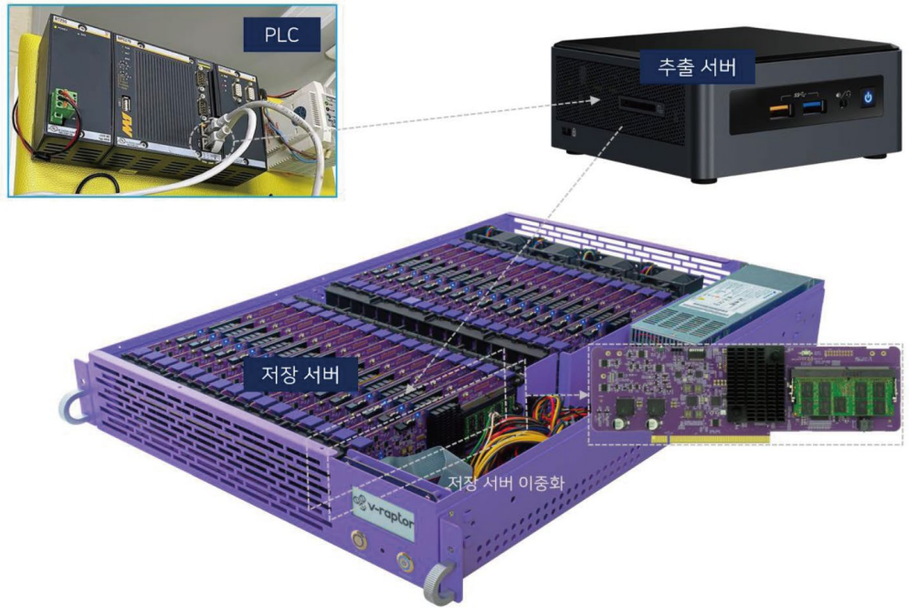


We have built a private cloud that can extract and store data within the factory in real time and share it with the outside without reinforcing separate cooling and power facilities.

v-raptor LX v-raptor SQ v-raptor SQ mini

Delivery & Construction of Arm Servers at SAMA Aluminum for Smart Factory

SAMA
삼아알미늄주식회사

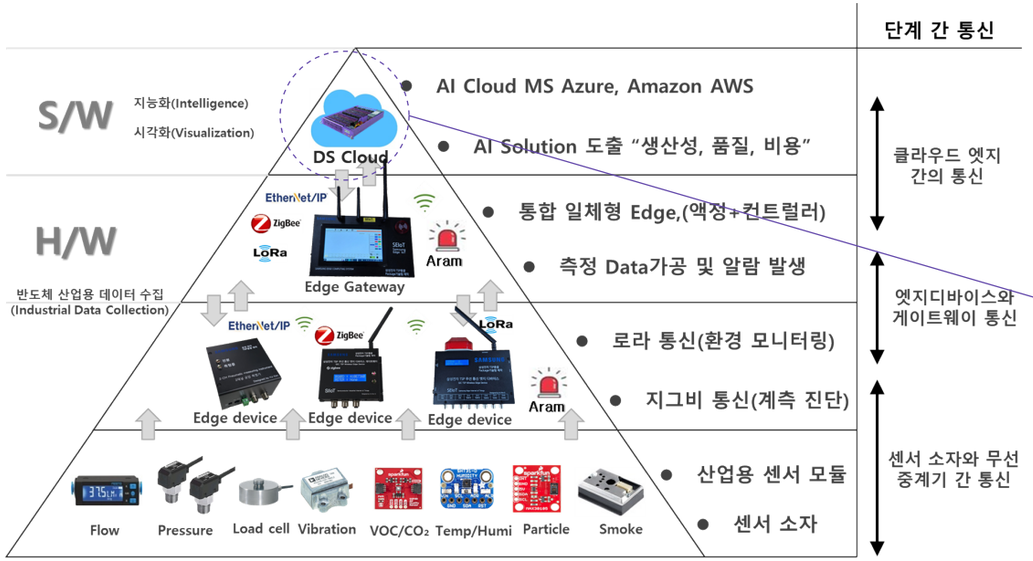


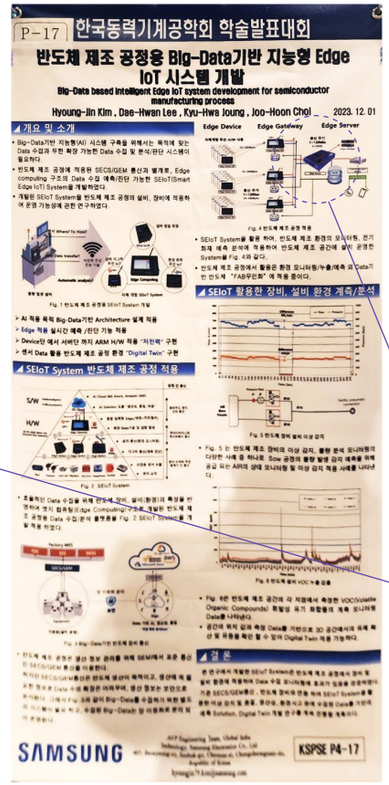
We have built a private cloud that can extract and store data within the factory in real time and share it with the outside without reinforcing separate cooling and power facilities.

Delivery & Construction of Arm Servers at Korea Automotive Technology Institute (KATECH)

We delivered and built a V-Raptor LX server with 50 disks configured as Ceph in the same environment as the existing environment for data backup of the existing x86 server in use at KATECH.

Delivery & Construction of Arm Servers at Samsung Electronics for Smart Factory



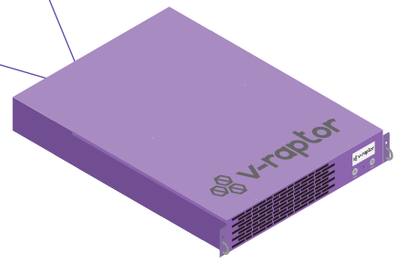

P-17 한국동력기계공학회 학술발표대회

반도체 제조 공정용 Big-Data기반 지능형 Edge IoT 시스템 개발

Big-Data based Intelligent Edge IoT system development for semiconductor manufacturing process

Hyoung-Jin Kim , Dae-Hwan Lee , Kyu-Hwa Joung , Joo-Hoon Choi 2023. 12. 01

SAMSUNG KSPSE P4-17



As part of Samsung Electronics' development of a big data-based intelligent edge IoT system for semiconductor manufacturing processes, V-Raptor SQ was delivered as a server for monitoring the manufacturing process and analysing fire predictions.

v-raptor SQ

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