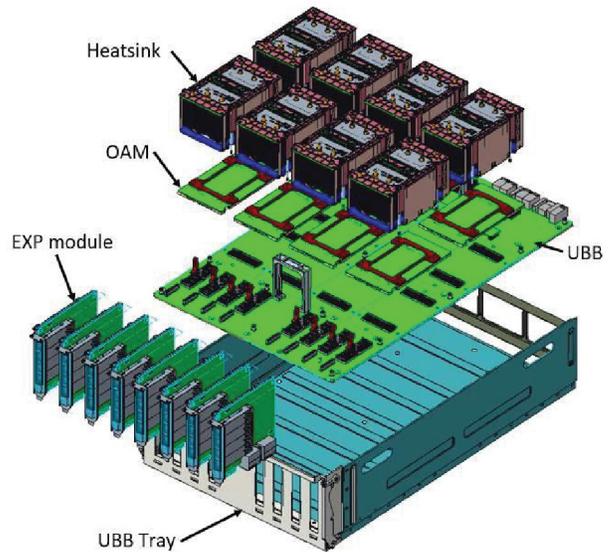![AMAX logo]

Custom Board Design for Next-Gen AI Chips
Achieving Energy Efficiency and Scalability with OCP Standards

Customized Compute for AI Acceleration

Emerging custom ASIC accelerators are challenging GPGPUs in AI workloads by providing specialized, optimized hardware for specific tasks. These accelerators offer higher performance and energy efficiency. While the OAM form factor enables higher power density and an ultra-high-speed interconnect fabric, existing Universal Base Board (UBB) designs are vendor-specific and proprietary, and UBB platforms for custom OAMs are not available on the market.

To address these challenges, AMAX is offering custom Universal Base Board (UBB) server solutions that can be purpose-built to meet specific requirements, including a specific GPU/CPU ratio, advanced cooling, and increased power to the OAM modules to optimize performance and efficiency. A building-block approach combining off-the-shelf OCP and custom-designed components reduces design time and cost. This solution unlocks the power of custom accelerators, allowing AI businesses to push the boundaries of AI workloads without being restricted by GPGPU hardware limitations.
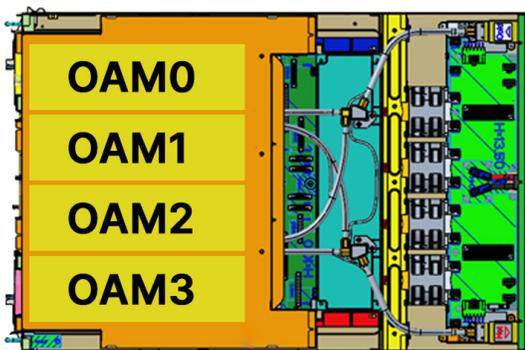

Standard OAI System

AMAX Custom UBB Solution

Understanding OCP, UBB, OAI, and OAM

The Open Compute Project (OCP) sets open hardware standards aimed at improving data center efficiency. The Universal Base Board (UBB) is a key component in the Open Accelerator Infrastructure (OAI), designed to support advanced accelerators.

The OAM (Open Accelerator Module) form factor enables higher power density and an ultra-high-speed interconnect fabric for integrating various AI chips. AMAX's custom UBB follows OCP guidelines, offering purpose-built solutions to meet specific requirements. By using a combination of off-the-shelf and custom-designed components, AMAX reduces design time and cost while optimizing power efficiency, thermal management, and performance.

Advanced Cooling for High-Density AI Workloads

The custom-designed AI chip server integrates with the OCP-inspired AMAX IntelliRack, featuring blind-mate liquid cooling and bus bar power distribution. This rack-scale system provides efficient thermal management and power delivery for AI accelerators in high-density environments. The solution enables AI businesses to scale infrastructure effectively while maintaining consistent performance under heavy workloads.

IntelliRack A45 + Sidecar

Key Features

Increased Efficiency
Custom-built solutions allow optimization of the GPU/CPU ratio, providing efficient power usage per accelerator.

Enhanced Cooling
Advanced liquid cooling provides consistent thermal performance for high-density AI workloads.

OCP Compatibility
Designed to OCP standards, offering energy efficiency and scalability with a mix of off-the-shelf and custom components.

AMAX as Your Custom Solutions Partner

AMAX offers comprehensive design, manufacturing, and deployment services for specialized hardware solutions. From custom boards to advanced thermal management, our team delivers custom solutions that meet your specific computing needs—from design to deployment.

AMAX // CASE STUDY