

CUBE



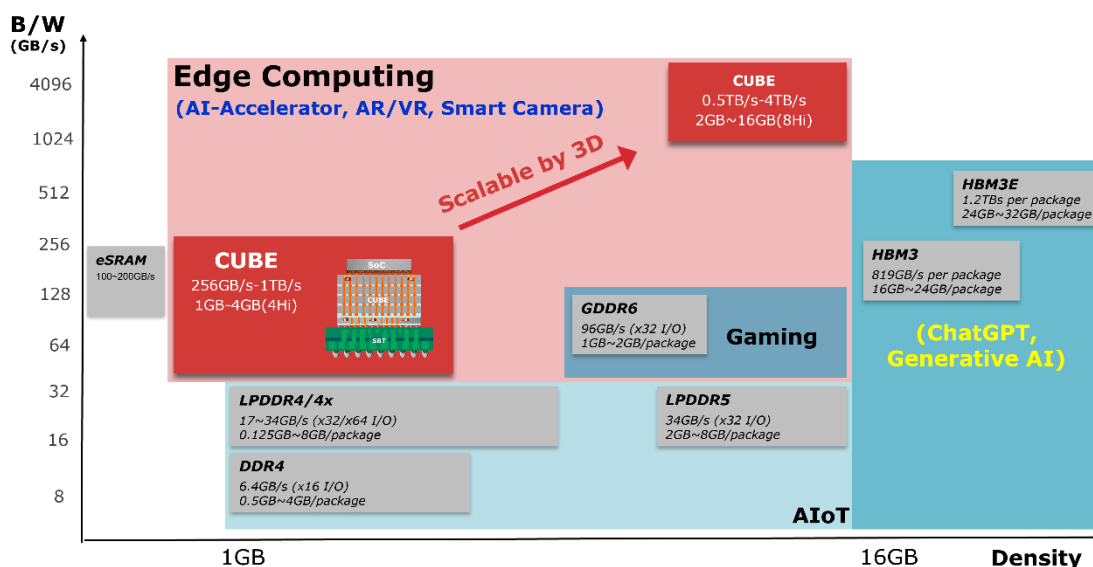
CUBE – Revolutionizing Edge AI Computing

High-Bandwidth, Low-Power Memory for the Next Generation of AI SoCs

The rapid evolution of AI has exposed the bandwidth, latency, and power limitations of conventional DRAM architectures. Winbond's CUBE memory designed for AI SoCs operating in mobile, edge, and embedded environments. CUBE achieves high bandwidth throughput with a significantly reduced thermal footprint, enabling high-speed AI workloads without compromising system power budgets or form factor constraints.

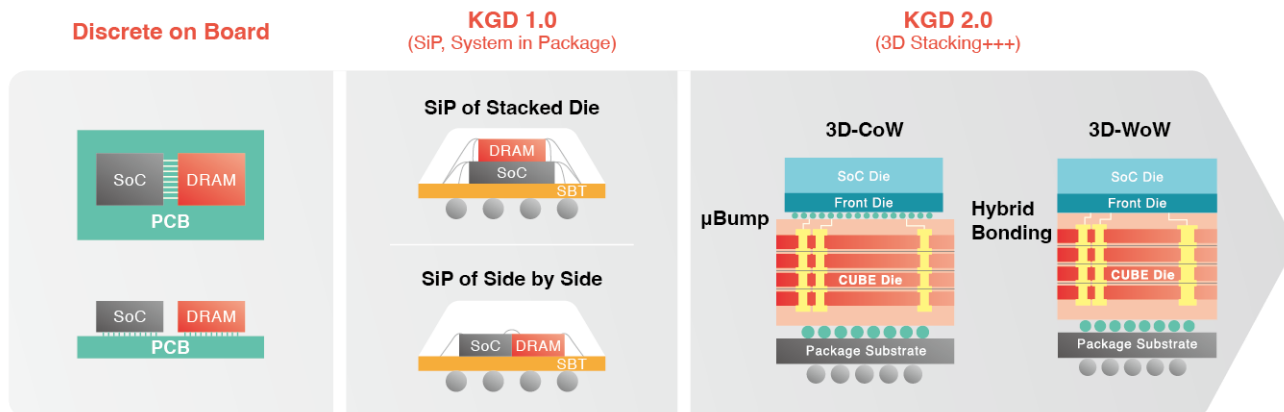
Key Features

- **Extreme Bandwidth**
 - >8GB, >1TB/s, based on < 100 mm² die size with SoC + 4Hi DRAM interconnection via u-bump.
 - >70GB, >30TB/s, based on a single-reticle design with SoC + 4Hi DRAM interconnection via hybrid bonding.
- **High Performance & Low Power**
 - Lower power consumption than traditional high-bandwidth memory
 - Optimized thermal management for long-term stability
- **CUBE-Lite for Energy-Sensitive Applications**
 - 8–16 GB/s bandwidth (equivalent to LPDDR4x x16/x32)
 - Only 30% of LPDDR4x power consumption
 - No LPDDR PHY required, compatible with 28nm/40nm process nodes
 - Smaller SoC die size and reduced LP4 IP licensing cost
- **Advanced Packaging**
 - TSV and hybrid bonding technology
 - Reduced latency and improved signal and power integrity



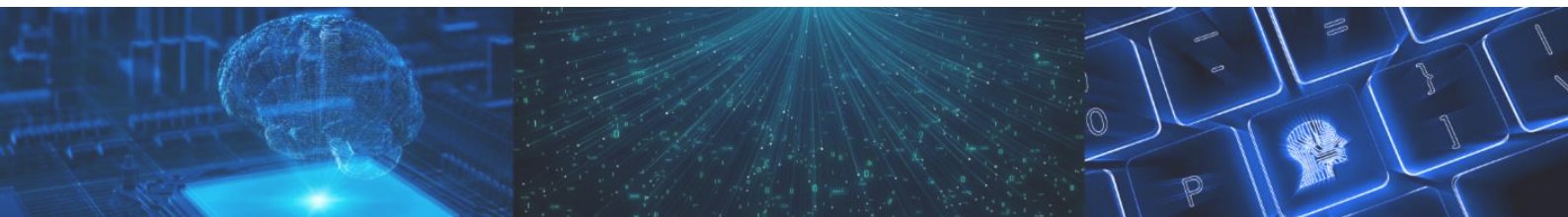
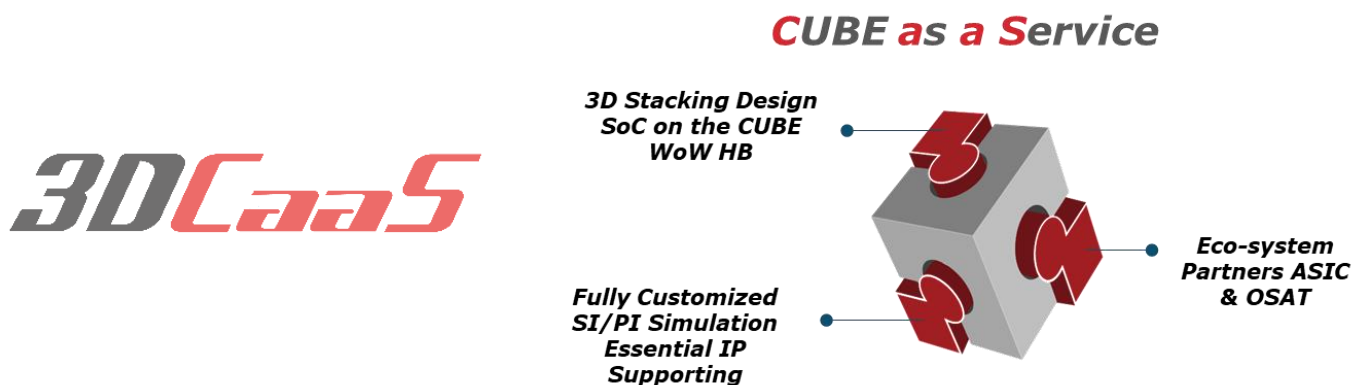
KGD vs CUBE

KGD (Known-Good Die) and CUBE serve distinct purposes in memory integration. KGD refers to fully tested, high-quality bare dies designed to ensure reliability, cost efficiency, and flexible packaging, often used in SIPs or module applications. CUBE, on the other hand, is Winbond's innovative 3D memory architecture tailored for edge AI computing. By leveraging TSV, hybrid bonding, and advanced stacking techniques, CUBE delivers ultra-high bandwidth, low power consumption, and compact form factors to meet the stringent demands of AI-driven workloads.



3DCaaS Platform

Winbond is actively engaging with partner companies to establish the 3DCaaS platform, which will leverage CUBE's capabilities. By integrating CUBE with existing technologies, Winbond aims to offer cutting-edge solutions that empower businesses to thrive in the era of AI-driven transformation. For any related inquiries or requirements, please contact Winbond.



CMS Website



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