ADLINK
LEADING EDGE AI COMPUTING



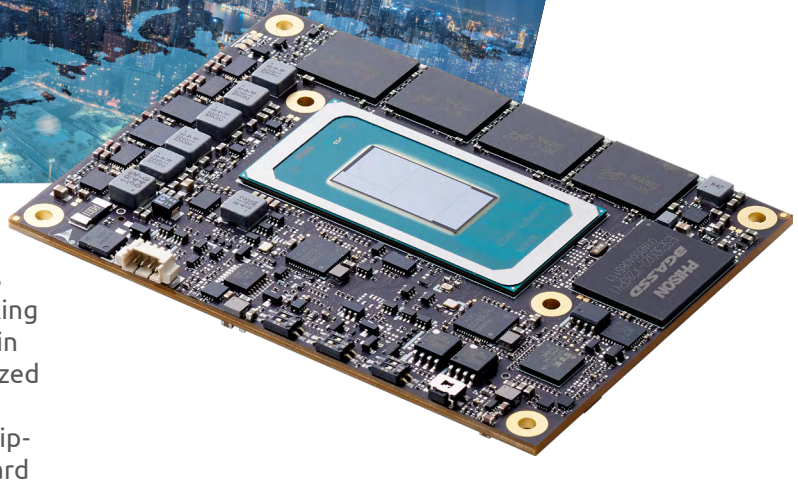
The Strategic Imperative

Mastering Embedded Design with Standardized Computer-on-Modules

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Navigating the Modern Engineering Landscape



Today's equipment makers face a convergence of pressures that make traditional design approaches increasingly untenable. Market windows are shrinking while product lifecycles are expanding. Supply chain volatility has become the new normal, and specialized talent for high-speed digital design is scarce and costly. The original in house or even outsourced chip-down single board methodology—once the standard for custom hardware—now represents significant increase in total cost of ownership and time to market challenges for most organizations.

ADLINK Technology offers a sophisticated alternative: the strategic implementation of standardized **Computer-on-Modules (COMs)** based on open specifications from leading industry consortia. This approach represents more than a procurement decision; it's a fundamental shift in product development strategy. By decoupling the rapidly evolving compute core design from the application-specific hardware, customer engineering teams regain control over their most valuable resource: manpower, which can now be invested in their added value designs.

This below article explores how ADLINK's COM-centric philosophy—spanning standards from **PICMG** and **SGET (Standardization Group for Embedded Technologies)**—transforms complexity into competitive advantage, enabling organizations to build more capable, scalable, and sustainable embedded systems.

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The ADLINK COM Portfolio:

Only Open Standards Engineered for Every Tier of Performance

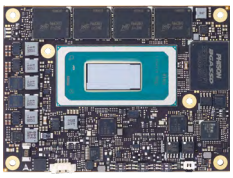
ADLINK offers the industry's most comprehensive portfolio of standardized Computer-on-Modules, supporting specifications from both PICMG and SGET, each architecture optimized for specific performance, power, and application profiles.

PICMG Standards: High-Performance & Industrial Computing

COM-HPC:

The Next-Generation Performance Architecture

Designed for the most demanding edge computing applications, COM-HPC represents a quantum leap in bandwidth and scalability.



- **COM-HPC Server Modules:**
  Bring datacenter-class performance to rugged environments. Supporting high-core-count server processors, massive PCIe Gen 5/6 connectivity (65+ lanes), and high-speed networking (25/100GbE KR), these modules power edge data analytics, virtualized network functions, and high-performance computing at the edge.
- **COM-HPC Client Modules:**
  Engineered for graphics-intensive and AI-enabled applications. Featuring multiple high-resolution display outputs, extensive USB4 connectivity, and substantial PCIe resources, they are ideal for medical imaging, test and measurement, robotics, autonomous systems, advanced HMIs, and immersive simulation.
- **COM-HPC Mini Modules:**
  The latest innovation, packing the high-speed I/O capability of the COM-HPC architecture (PCIe Gen5, USB4) into a compact 95x70mm footprint for powerful, space-constrained designs.

COM Express:

The Industrial Computing Standard

The established, versatile backbone of embedded computing, with a proven ecosystem and unparalleled reliability.



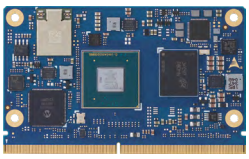
- **COM Express Type 6 (Basic/Compact):**
  The multi-purpose workhorse for industrial automation, interactive kiosks, digital signage, and general-purpose embedded computing. Offers an optimal balance of graphics capability, I/O flexibility, and expansion.
- **COM Express Type 7:**
  The server-on-module specification for headless, compute-intensive edge applications. Optimized for high-speed networking (10GbE KR) and maximum PCIe connectivity for storage and accelerators, perfect for networking appliances, controllers, and gateways.
- **COM Express Type 10 (Mini):**
  The ultra-compact x86 solution for mobile and space-constrained applications requiring full PC architecture in a minimal footprint.

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SGET Standards: Ultra-Low-Power & Mobile Optimized

SMARC:

The Premier Power and Space Optimized Architecture



The flagship **SGET** standard for low-power, fanless, and compact designs where Size, Weight, Power, and Cost are critical constraints.

SMARC Modules:
Supporting both x86 and Arm architectures, SMARC modules excel in IoT gateways, handheld medical devices, advanced robotics, in-vehicle systems, and any application demanding rich multimedia and industrial I/O (MIPI-CSI, CAN, TSN Ethernet) in a minimal thermal envelope. Its exceptionally low profile (as low as 11.7mm total height) makes it ideal for ultra-slim designs.

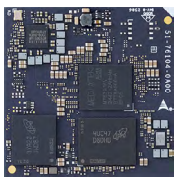
Qseven:

The Compact Mobile Computing Standard

Another key **SGET** specification, Qseven defines a compact 70x70mm form factor optimized for low-power mobile and embedded mostly x86 applications.

OSM (Open Standard Module):

The New Paradigm in Modularity



SGET OSM represents a groundbreaking approach to embedded modularization. Unlike traditional COMs that use high-density board-to-board connectors, OSM utilizes **standardized soldered-down modules**.

Key Advantages of OSM:

- **Exceptional Ruggedness:**
  Without connectors, OSM achieves superior resistance to shock, vibration, and harsh environments, ideal for automotive, aerospace, and heavy industrial applications.
- **Reduced Profile:**
  The soldered approach enables the lowest possible z-height, critical for ultra-thin devices.
- **Cost Efficiency at Volume:**
  Eliminating expensive connectors reduces BOM cost, making OSM economically advantageous for high-volume production.
- **Thermal Performance:**
  Direct solder connection provides excellent thermal transfer from module to carrier board.
- **Signal Integrity:**
  Shorter signal paths enhance electrical performance for high-speed interfaces.

ADLINK is at the forefront of SGET OSM development, providing modules that combine the flexibility of COM design with the robustness and cost structure of soldered solutions for demanding, high-volume applications.

Keeping it all alive: Legacy & Sustained Architectures

Understanding that embedded systems have decade-long lifecycles, ADLINK maintains support for legacy form factors like **ETX** and **COM Express type2**. We provide lifecycle management, component obsolescence mitigation, and re-design services for systems based on these architectures, ensuring continuity for installed bases.

ADLINK Was There When the Blues Began:

A Legacy of Specification Leadership

ADLINK Technology's deep-seated role as a foundational driver of today's most critical embedded Computer on Module standards is not merely a footnote— it is the very history of the modular computing landscape itself.

2004

COM Express, the most successful and enduring Computer-on-Module specification in the embedded market—traces its lineage directly to an early **ETXexpress** initiative pioneered by Kontron, ADLINK and Advantech in **2004**. This foundational vision of a PCIe-based, high-performance, mezzanine module became the bedrock later know as **COM Express**. ADLINK's commitment extends far beyond initial creation; it is a continuous stewardship. **For over 16 years, ADLINK's own Chief Technology Officer has served as the Chairman of the PICMG COM Express Subcommittee**, guiding the standard's evolution through multiple generations and ensuring its relevance for the most demanding industrial applications.

2012

Similarly, when the industry needed a new path for low-power, compact designs, **ADLINK** was there at the inception, co-creating and introducing the original **ULP-COM** (Ultra Low Power) form factor alongside Kontron in **2012**. This pioneering work formed the essential technical blueprint that, through **SGET** (Standardization Group for Embedded Technologies), was ratified and rebranded as the now-ubiquitous **SMARC®** (Smart Mobility ARChitecture) specification.

2018

This leadership has extended powerfully into the next generation of performance. Recognizing the need for a new standard to support unprecedented bandwidth and compute density at the edge, **ADLINK** took a seat at the very top table. The company was one of **three PICMG Executive Members**, in **2018**, to formally charter and launch the dedicated subcommittee tasked with creating what would become the **COM-HPC** (High Performance Computer-on-Module) specification. From the earliest architectural debates to the final ratification of the standard, ADLINK provided critical technical direction, market insight, and engineering resources to shape COM-HPC into the robust, future-proof specification it is today. This executive-level involvement ensured COM-HPC was designed not as an incremental update, but as a revolutionary architecture capable of handling PCIe Gen 5/6, high-speed networking, and heterogeneous computing—directly addressing the coming wave of AI, virtualization, and intense edge data processing.

This unparalleled legacy and proven track record over the last two decades mean that when you choose an ADLINK COM module, you are not just selecting a product—you are building on a foundation crafted by the very architects of these standards, backed by decades of insider expertise and a proven commitment to the ecosystem's success.

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The ADLINK COM Value Proposition:

Beyond the Module

Partnering with ADLINK for your Computer-on-Module strategy delivers compound value that extends across the entire product lifecycle. Our value proposition encompasses technical excellence, strategic flexibility, and long-term supply line security.

Technical & Time-to-Market Excellence



- **Radical Development Acceleration**
  By starting with a fully validated, certified compute core, engineering teams compress their own development cycles by at least **5 months**. This acceleration isn't merely about saving on engineering hours—it's more importantly about capturing market opportunities, responding to competitive moves, and achieving revenue realization during optimal market windows.



- **Substantial Risk Mitigation**
  We eliminate the most complex and failure-prone aspects of embedded design: high-speed digital signaling (DDR memory interfaces, PCI Express routing), power integrity management, and thermal optimization for high-performance processors. Each ADLINK COM arrives as a pre-validated super-component, having undergone rigorous signal integrity testing, thermal validation, and reliability certification.



- **Strategic Engineering Focus**
  Liberate your senior engineers from the intricacies of processor integration and validation. Redirect this expertise toward your core competencies: application-specific carrier board design, proprietary algorithm development, unique sensor integration, and domain-specific software innovation. This is where our customers achieve genuine product differentiation and market leadership.

Long-Term Viability & Ecosystem Strength

- **Future-Proof Architectural Foundation:**
  ADLINK's commitment to **open**, **vendor-neutral standards** (COM-HPC, COM Express, SMARC, OSM) provides a guaranteed migration path. As processing requirements evolve—whether for increased AI capability, enhanced graphics performance, or expanded connectivity—upgrades can often be achieved through a module swap, protecting your carrier board investment and extending product revenue streams.

- **Guaranteed Longevity & Support:**
  We align our technology roadmaps with the longevity commitments of leading silicon partners. Our **Long-Term Support (LTS) programs** ensure hardware availability, driver updates, security patches, and BSP maintenance, meeting the stringent lifecycle demands of industrial, medical, transportation, and defense applications.

- **Strategic partnerships:**
  ADLINK ranks as the preferred ODM or OEM with companies such as: Intel, AMD, Nvidia, NXP, Mediatek, Qualcomm and Ti.

- **Manufacturing Excellence & Quality Assurance:**
  ADLINK's vertical manufacturing capabilities represent a strategic asset. Our facilities, certified to ISO-13485 (medical) and IATF 16949 (automotive) standards, implement rigorous **Design for Manufacturability (DFM)** and **Design for Test (DFT)** principles. This ensures not only superior quality and reliability but also optimized yield and cost efficiency at production scale.

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ADLINK’s inhouse Systems Integration Lab:
Your De-Risking Partner



A truly distinctive aspect of partnering with ADLINK is access to our **Systems Integration Lab (SI Lab)** expertise. This team functions as an extension of our and your engineering organization, specializing in pre-validating complex integrations that typically consume weeks of development time.

- **Compatibility & Performance Validation:** The SI Lab conducts exhaustive compatibility testing of GPUs, FPGA accelerators, specialized networking cards, and storage subsystems across our COM portfolio. They generate detailed performance benchmarks for thermal behavior, power consumption under load, and real-world I/O throughput—data crucial for architectural decisions and customer specifications.

- **Solving Integration Challenges:** The most difficult problems often emerge at the intersection of hardware, firmware, and software. The SI Lab's systems-level expertise is instrumental in diagnosing and resolving these integration challenges, saving significant debug time and ensuring smoother progression to production.

Engineered for the Extremes:
ADLINK's Rugged COM Solutions for Harsh Environments



When failure is not an option and operational environments push the very limits of electronics, Almost all ADLINK’s Computer-on-Modules (COMs) are engineered for extreme ruggedization, certified to perform reliably across an expanded temperature range of -40°C to +85°C. This capability is not an afterthought but a core design philosophy, addressing the stringent demands of mission-critical applications in aerospace, industrial automation, transportation, and energy. Our COMs undergo a rigorous qualification process that begins at the component level, utilizing industrial- and automotive-grade silicon, conformal coating to protect against moisture and contaminants, and specialized thermal interface materials to ensure efficient heat dissipation across the entire operating spectrum. The design extends to mechanical robustness, with enhanced PCB laminates, underfill on critical BGA components to withstand shock and vibration, and validation through comprehensive testing that exceeds MIL-STD and IEC standards for thermal cycling, humidity, and mechanical stress. Whether it’s a COM Express module controlling systems in an arctic mining vehicle, a SMARC module processing data in a desert-deployed communications unit, or a COM-HPC module running AI inference on the factory floor, ADLINK’s rugged portfolio ensures unwavering reliability. This commitment to extreme environmental tolerance provides our partners with the confidence to deploy intelligent systems anywhere on the planet, turning the harshest conditions from a liability into a domain of competitive advantage.



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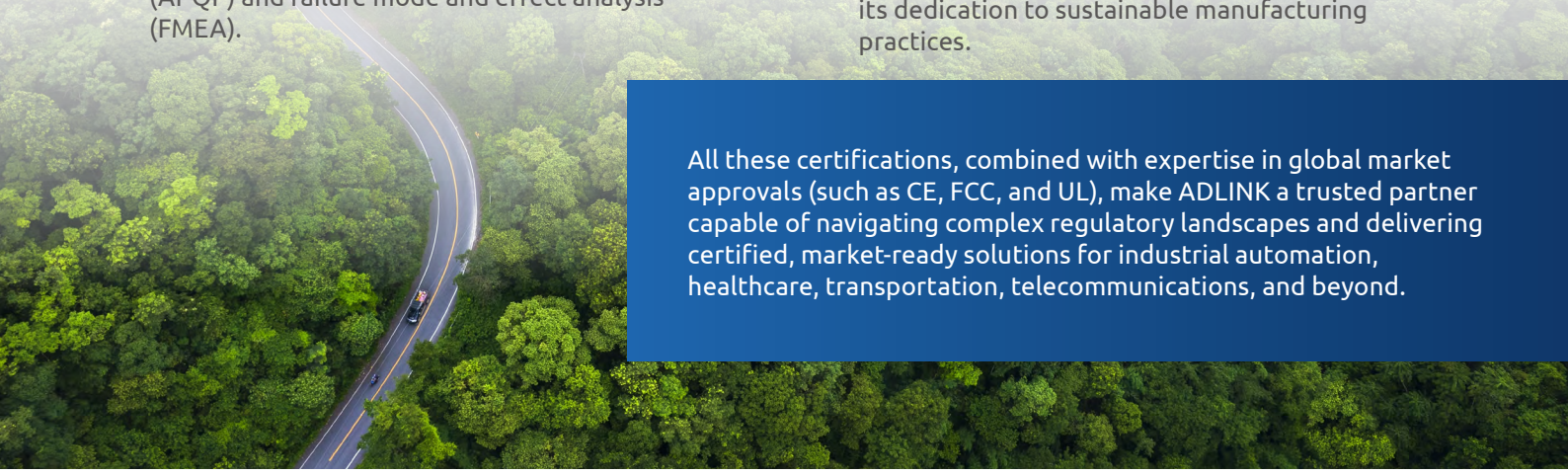
Unmatched Reliability:
Setting the Standard for System Uptime

In an industry where system failure equates to operational downtime, safety risks, and significant financial loss, ADLINK Technology distinguishes itself by engineering Computer-on-Modules (COMs) that deliver some of the highest Mean Time Between Failures (**MTBF**) rates in the market. This exceptional reliability is not a marketing claim but a quantifiable outcome of our holistic design-to-manufacturing philosophy. We achieve industry-leading MTBF figures through a multi-faceted approach: beginning with stringent **component selection** that **prioritizes industrial- and automotive-grade parts** with proven longevity, implementing conservative electrical design with significant margin on power and signal integrity, and employing advanced thermal management solutions that prevent premature aging. A cornerstone of this methodology is our rigorous component de-rating procedure, where each critical component—from processors and memory to capacitors and voltage regulators—is intentionally operated well below its maximum rated specifications. By systematically reducing electrical, thermal, and mechanical stress on every part, we significantly extend component lifespan and enhance overall system robustness. Each module undergoes Highly Accelerated Life Testing (**HALT**) to validate these de-rating strategies and identify and eliminate potential failure modes long before production. This relentless focus on durability and predictive reliability engineering means that when you deploy an ADLINK COM, you are not just installing hardware—you are investing in predictable, uninterrupted operation. Our superior MTBF, proven through both calculation and real-world validation, translates directly into lower total cost of ownership, reduced maintenance burdens, and the peace of mind that comes from knowing your embedded intelligence is built on the most dependable foundation available, designed to perform day after day, year after year, in the most demanding applications.

Certified Excellence:
The ADLINK Stamp of Trust Across Industries

ADLINK Technology stands as a premier manufacturing and development partner across diverse verticals due to its robust portfolio of internationally recognized certifications that underscore its commitment to quality, reliability, and regulatory compliance. The company's facilities are certified to ISO 9001 for quality management systems, ensuring consistent excellence in operations and customer satisfaction. For the medical and life sciences sectors,

- ADLINK holds ISO 13485 certification, which is critical for designing and manufacturing medical devices, demonstrating adherence to stringent regulatory requirements and risk management protocols.
- In the automotive industry, ADLINK's compliance with IATF 16949 validates its capability to meet the rigorous quality standards of automotive supply chains, including advanced product quality planning (APQP) and failure mode and effect analysis (FMEA).
- For defense and aerospace applications, the company's processes align with AS9100 standards, ensuring the highest levels of safety, traceability, and reliability for mission-critical systems.
- ADLINK is IEC 62443-4-1 certified, and thereby translated Secure-by-Design from principle into operational practice—supported by sustainable, cross-functional execution across R&D, testing, quality, supply chain, and lifecycle maintenance. This milestone confirms that ADLINK has established an auditable, sustainable, and repeatable secure engineering framework across its Secure Product Development Lifecycle (SDL), reinforcing the company’s commitment to delivering safe, reliable, and highly resilient edge computing solutions to customers worldwide.
- Additionally, ADLINK adheres to ISO 14001 for environmental management, showcasing its dedication to sustainable manufacturing practices.



All these certifications, combined with expertise in global market approvals (such as CE, FCC, and UL), make ADLINK a trusted partner capable of navigating complex regulatory landscapes and delivering certified, market-ready solutions for industrial automation, healthcare, transportation, telecommunications, and beyond.

The Strategic Implementation Framework:

A Four-Phase Approach

Phase 1

Processing Architecture & Standard Selection

Choosing Your Strategic Foundation

The initial and most critical decision in any embedded design is the dual selection of both the processing architecture and the standardized Computer-on-Module (COM) form factor. This choice locks in the performance ceiling, power profile, software ecosystem, physical dimensions, thermal constraints, and long-term scalability of your entire product. Rather than a simple component selection, it is an architectural commitment that defines your system's capabilities for its entire lifecycle. ADLINK's role is to guide you through this complex landscape with our comprehensive portfolio and deep expertise across all major open standards, ensuring your foundation is not just adequate for today, but strategically optimized for tomorrow.

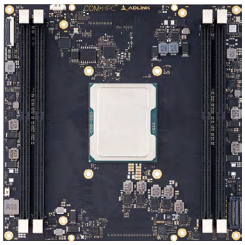
The COM-HPC Ecosystem:

Performance-Critical & Bandwidth-Intensive Applications

When your application demands uncompromising performance, massive data throughput, and future-proof expansion, the COM-HPC (High-Performance Computing) family is the definitive choice. Designed by PICMG for the next generation of edge systems, it represents a quantum leap beyond previous standards.

COM-HPC®

- **COM-HPC Server Modules:**



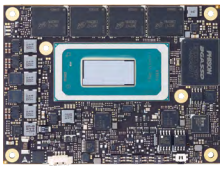
Built for headless, compute-intensive edge servers that must process vast data streams in real-time. In larger footprints (Size D: 160x160mm, E: 200x160mm), they support server-grade CPUs with high core counts and massive memory capacities (up to 8 DIMM slots). The standard omits graphics in favor of unprecedented connectivity: 65+ PCIe Gen 5/6 lanes and 8 channels of 25 GbE (KR) networking. This architecture is perfect for 5G network appliances, edge data analytics servers, virtualized network functions (VNFs), and high-performance computing clusters deployed outside climate-controlled data centers. Integrated Platform Management Interface (PMI) support enables advanced remote management and monitoring.

- **COM-HPC Client Modules:**



Engineered for graphics-heavy and AI-enabled workloads, these modules are the powerhouses for immersive experiences and intelligent automation. Available in three sizes (Size A: 120x95mm, B: 120x120mm, C: 120x160mm), they offer exceptional headroom for high-TDP processors. Their defining features include support for 49 lanes of PCIe Gen 5/6, enabling direct connection to multiple high-speed GPUs, NVMe storage arrays, and specialized accelerators. They provide up to 4 independent high-resolution display interfaces (DDI/eDP), making them ideal for advanced medical imaging, autonomous vehicle cockpits, 4K digital signage, and complex simulation environments. With dual high-density 400-pin connectors and a power budget of up to 251W, they deliver datacenter-class performance in a rugged, modular form factor.

- **COM-HPC Mini Modules:**



The newest addition bridges the gap between high performance and compact design. On a 95x70mm board, it incorporates a single 400-pin connector carrying critical high-speed interfaces like 16 lanes of PCIe Gen 5 and USB4, making it ideal for powerful, dense systems in telecommunications, defense, and compact industrial computers where space is at a premium but performance cannot be compromised.

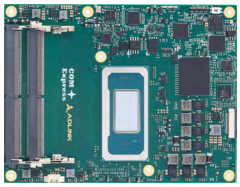
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COM Express:

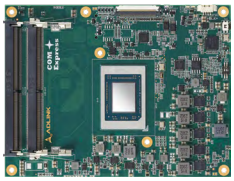
Proven Reliability & Industrial Ecosystem Breadth

As the mature, battle-tested workhorse of industrial computing, COM Express offers unparalleled stability, a vast accessory ecosystem, and a proven migration path over nearly two decades.

- **COM Express Type 6 (Basic/Compact):**
  The versatile multi-purpose standard. The Compact form factor (95x95mm) is perfect for space-limited designs, while the Basic form factor (125x95mm) offers more headroom for powerful, often socketed, processors. It provides a robust set of features: 24 PCIe lanes, multiple display outputs (including legacy LVDS), 4 SATA ports, and extensive USB connectivity. Its strength lies in its predictability and the enormous ecosystem of compatible carriers, cooling solutions, and software—making it the default choice for industrial PLCs, interactive kiosks, transportation systems, and digital signage where long-term availability and proven reliability are paramount.



- **COM Express Type 7:**
  The "server-on-module" specification carves out a niche for headless, network-focused edge applications within the familiar COM Express ecosystem. It trades the graphics interfaces of Type 6 for enhanced data throughput, supporting 32 PCIe lanes and four 10 GbE (KR) interfaces. This makes it ideal for networking gateways, controllers, and edge servers in Industrial IoT (IIoT) settings that require deterministic, high-bandwidth communication without a local GUI.



- **COM Express Type 10 (Mini):**
  The solution for embedding full x86 architecture into the tightest spaces (84x55mm). It supports soldered, low-power processors and features an optional wide-range DC input (4.75V to 20V), making it uniquely suited for battery-powered or vehicle-mounted applications. It delivers essential PC functionality in a minimal footprint for portable test equipment, handheld devices, and ultra-compact embedded controllers.

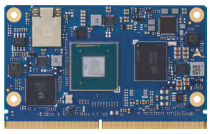


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SMARC:

for Space Constraint and Power Optimized Designs

When Size, Weight, Power, and Cost are the primary constraints, the standards from the Standardization Group for Embedded Technologies (SGET) provide specialized solutions.



- SMARC (Smart Mobility ARChitecture) 2.1 Modules: The gold standard for ultra-low-power, fanless, and feature-rich compact designs. The primary 82x50mm form factor achieves an exceptionally low profile (as little as 11.7mm total height).
- Its genius is in balancing rich I/O with power efficiency: it supports multiple MIPI-CSI camera inputs and display outputs (LVDS, eDP, DP/HDMI and DSI) for multimedia, alongside industrial interfaces like CAN bus and TSN-enabled Ethernet.
- With support for both x86 and Arm processors and a focus on a sub-15W thermal design power (TDP) envelope, SMARC is the ideal engine for IoT gateways, advanced handheld medical devices, in-vehicle infotainment, and intelligent robotics.

OSM

(Open Standard Module):

Ruggedized, High-Volume Manufacturing

The SGET OSM standard represents a paradigm shift from connector-based to soldered-down module architecture, addressing unique market needs.



Key Features & Advantages:

- By eliminating the traditional high-density connector, OSM modules are inherently more rugged, exhibiting superior resistance to shock, vibration, and corrosion—a critical requirement for automotive, aerospace, and heavy industrial environments.
- This soldered approach also enables the lowest possible z-height and improves thermal transfer from the SOC to the main PCB.
- From a manufacturing perspective, it reduces Bill of Materials (BOM) cost and simplifies assembly, making it economically compelling for high-volume production runs. OSM is not just a component; it's a design philosophy for creating ultra-reliable, cost-optimized embedded systems at scale.

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Phase **2** **Carrier Board Design & Optimization**

The carrier board is where your product's unique identity and innovation reside.

- **Standard-Specific Design Enablement:**
  ADLINK provides comprehensive design packages for each standard—including PICMG design guides for COM Express/COM-HPC and SGET resources for SMARC/Qseven/OSM. These include reference schematics, layout guidelines, and signal integrity recommendations.
  In addition ADLINK provides review services for schematics, layout, mechanical and thermal designs

- **Knowledge about Verticals:**
  ADLINK, besides Computer on Modules, has many vertical focused business units such as : Medical, Gaming, Automotive, Industrial Automation, Test and Measurement that can all contribute to the success of your project.

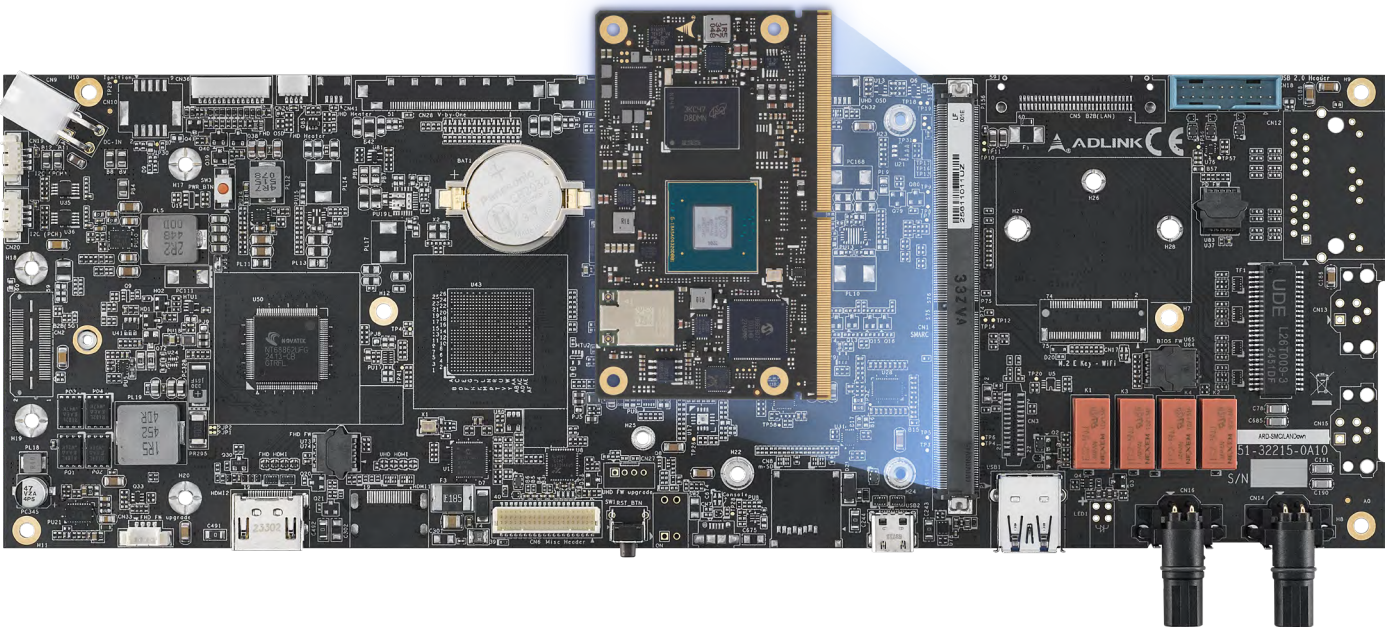
- **The Modular Parallel Development Advantage:**
  This approach allows concurrent development tracks—application software progresses on ADLINK evaluation kits while the final carrier board is designed, dramatically accelerating project timelines.

In addition, ADLINK can provide value-added services if a customer so requires:

- **Carrier Board Design Service:**
  On request your, ADLINK can offer you the development and production of your application-specific COM Carrier Board and other services in the area of system integration.

- **Carrier Manufacturing Service:**
  ADLINK's manufacturing service offers consolidated supply chain solutions with component risk monitoring, long-life cycle management, and global support, we deliver high-quality and reliable products to our customers. All ADLINK facilities are ISO-certified, and some hold additional certifications for specific vertical applications.

- **Supply Chain Consolidation:**
  Since ADLINK provides much more than logic boards only we can become your One stop shop for boards, panels, and peripherals. You will achieve cost savings through streamlined operations and optimized purchasing. Efficiency boost with supply chain consolidation reduces bottlenecks, cuts lead times, and enhances operation.



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Phase 3

Software & Security Foundation



A robust software foundation is critical for product success and security.

- **Standardized Software Portability:**
  A key advantage of open COM standards is software consistency across module generations and even across standards. Driver frameworks and BSP structures maintain compatibility, protecting software investments.

- **Production-Ready Software Stack:**
  Each ADLINK COM ships with optimized Board Support Packages (BSPs) for Yocto Linux. A select amount comes with Ubuntu, Windows IoT and Android BSP support with all necessary drivers and middleware.

- **Secure-by-Design:**
  ADLINK is IEC 62443-4-1 certified, and thereby ADLINK has established an auditable, sustainable, and repeatable secure engineering framework across its Secure Product Development Lifecycle (SDL). Our platforms incorporate hardware root-of-trust, secure boot, TPM 2.0, and hardware encryption engines from inception. Our long-term software support ensures continuous security updates throughout the product lifecycle.

Phase 4

System Integration & Validation



The final phase brings hardware and software together into a validated system.

- **Thermal & Mechanical Integration:**
  We provide detailed thermal design guides and mechanical models specific to each COM standard to ensure proper cooling and ruggedization.

- **Pre-Compliance Testing:**
  Our modules undergo extensive pre-compliance testing for emissions and immunity, simplifying your final product certification process.

- **Lifecycle Management Planning:**
  We establish a joint plan for firmware updates, security patches, and potential future module migrations within the chosen standard family, ensuring long-term system health.

Our technical and architectural teams synthesize all above variables—computational workloads, environmental extremes, target product lifespan, certification needs, and production volume forecasts—to recommend the optimal processor-and-standard combination. This ensures your design is built on the most strategic foundation possible, balancing immediate technical requirements with long-term business agility.

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The ADLINK Partnership Difference

What distinguishes ADLINK is not merely our product portfolio, but our partnership model and deep standards expertise:

- **Standards Leadership:** We actively participate in both **PICMG** and **SGET** committees, contributing to the evolution of COM-HPC, COM Express, SMARC, OSM and ETX specifications, ensuring our products embody the latest advancements.
- **Strategic Co-Development:** We engage as architectural partners, helping navigate the complex landscape of COM standards to select the optimal foundation for your specific technical and business requirements.
- **Total Lifecycle Commitment:** We share responsibility for the long-term success of your product in the field, through sustained technical support and lifecycle management services across the entire standards spectrum we support.

Global Reach, Local Touch:

ADLINK's World-Class Support Ecosystem

ADLINK Technology delivers the unique advantage of a global technology leader with the responsiveness and intimacy of a local partner. With a strategic presence in all major industrial and innovation hubs across **Americas, EMEA, and Asia-Pacific,** we are positioned to support your operations wherever you design, manufacture, or deploy. This global footprint is powered by local teams who speak your language—both technically and culturally—ensuring clear communication and alignment.

Beyond sales offices, **ADLINK embeds local R&D centers, field application engineers (FAEs), and dedicated technical support** in key regions, enabling real-time, in-person collaboration. Our regional experts possess deep knowledge of local market requirements, compliance regulations, and supply chain dynamics, providing tailored guidance that global generalizations cannot. This "glocal" model is further strengthened **by on-site integration support, local inventory hubs** for faster prototyping and pilot production, and **regionalized manufacturing** capabilities that offer flexibility and resilience.

When you partner with ADLINK, you gain a single point of accountability with the resources of a worldwide organization and the dedicated, familiar support of a local expert committed to your success.

Conclusion:

Building Sustainable Advantage Through Open Standards

In an era of accelerating technological change and increasing system complexity, the standardized Computer-on-Module approach—encompassing both connector-based and soldered-down (**OSM**) paradigms—represents the most strategic path forward for embedded innovation. It transforms fixed hardware costs into variable innovation investment, static architectures into scalable platforms, and proprietary designs into future-proofed solutions based on global industry standards.

ADLINK Technology provides more than modules—we provide the architectural framework across **PICMG** and **SGET** ecosystems, engineering partnership, and long-term commitment necessary to build embedded systems that compete, evolve, and endure.

This is how market leaders are built: not by locking into proprietary solutions, but by mastering open standards to focus on true innovation and optimal supply line security

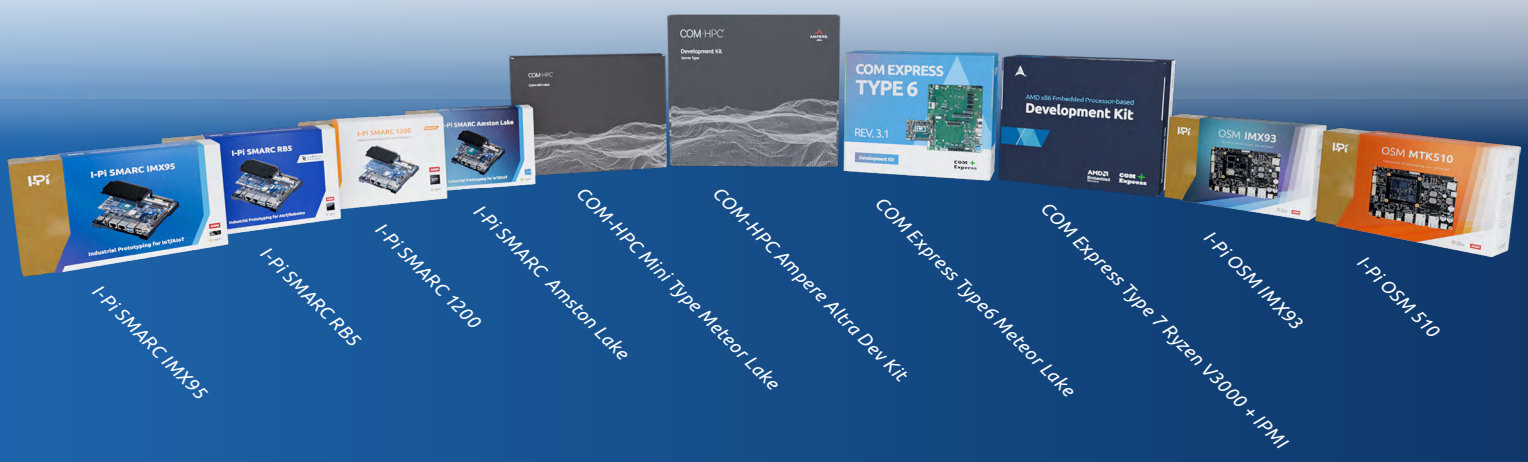
Begin your strategic architecture review with ADLINK. Connect with our COM standards specialists at www.adlinktech.com/en/computer_on_modules



Accelerating Innovation:

The I-Pi Development Ecosystem

To further streamline the transition from concept to production, ADLINK offers the **I-Pi COM-HPC, COM Express, SMARC and OSM development kits**, serving as the essential physical bridge for the "Modular Parallel Development" strategy. These industrial-grade kits provide engineers with an immediate, out-of-the-box hardware platform that replicates the final system's core functionality, allowing software teams to begin coding, debugging, and optimizing application layers while the custom carrier board is still in design. By utilizing these pre-validated platforms, organizations can effectively bypass the typical hardware-software bottleneck, ensuring that the software stack is production-ready the moment the first application-specific hardware arrives.



The path to rapid prototyping is made even more accessible through the **ADLINK I-Pi online Store**, a dedicated online portal designed for engineering agility. Customers can browse and directly order a wide range of I-Pi devkits—supporting both x86 and Arm architectures—with the convenience of global shipping to quickly kick off new projects. This direct-to-developer model eliminates traditional procurement delays, providing instant access to the same high-performance COM modules and carrier design resources used by market leaders. Whether you are exploring the ultra-low-power potential of SMARC or the rugged, soldered-down advantages of OSM, the I-Pi ecosystem ensures your development journey starts with speed and professional-grade reliability.

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