AMC

Era of Micro Computing

ADVANCED MICRO COMPUTING

AMC SOLUTION GUIDE

WHAT IS AMC?

Advanced Micro Computing (AMC) builds a comprehensive ecosystem for RISC/CISC-based OSM-L modules by seamlessly integrating converters, carriers, and system boards into a unified platform. This standardized approach streamlines development for edge and embedded systems, improves module interoperability, and reduces time-to-market with scalable, industrial-grade solutions.

AMC Ecosystem

MODULE

EXCLUSIVE
ASL

G700/G510

RISC-V (ESWIN)

i.MX 8M+

i.MX 93

AM3354

CARRIER

Mini-ITX Evaluation Kit

3.5" Embedded Board

CONVERTER

OSM to Qseven

OSM to SMARC

OSM to COMe Mini

SYSYEM

MIWA Series

ATIS Series

Converting from OSM to Module Standard

EX: Qseven Module

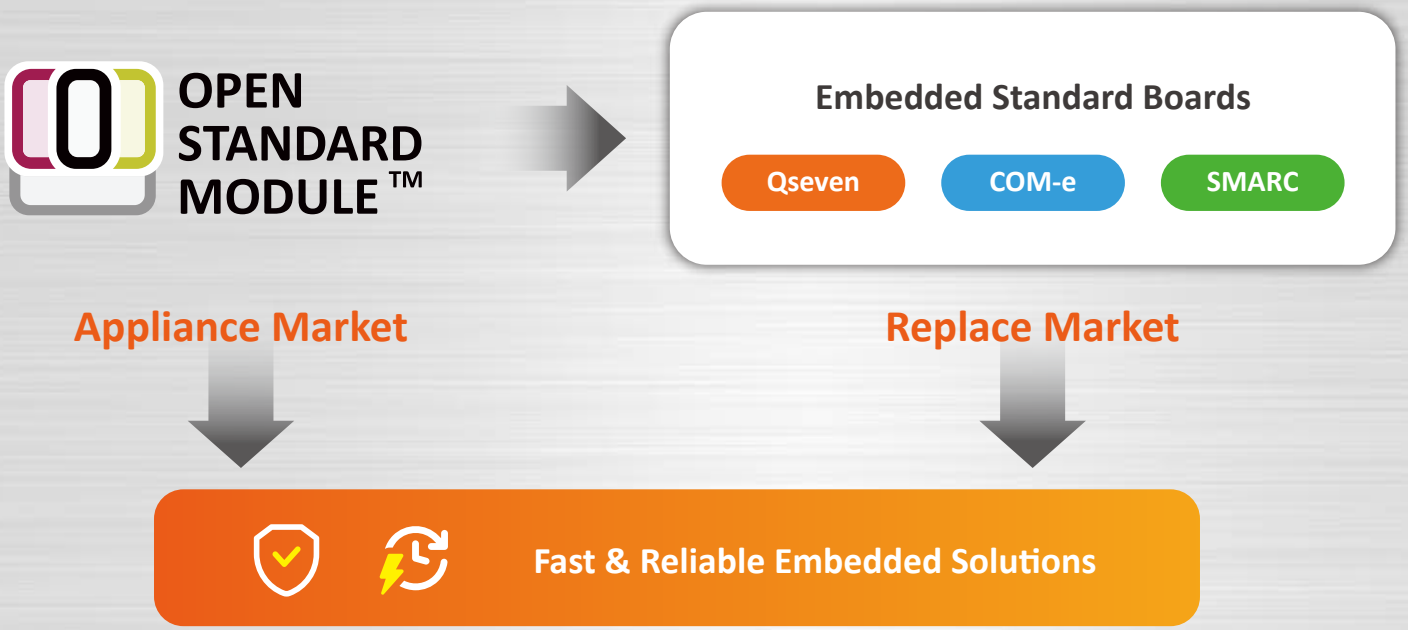
Converting from OSM to Motherboard Standard

EX: Mini-iTX

WHY AMC

AMC transforms OSM modules into industrial-standard modules, leveraging OSM functions for rapid market adoption and targeting the replacement market. With a complete ecosystem, AMC seamlessly integrates diverse modules and motherboards, enhancing compatibility and scalability, and accelerating application deployment for more efficient and flexible solutions.

**Converting from OSM module to industrial standard modules,
the modules specification will base on OSM function,
allowing for quick market adoption and focusing on the replacement market.**



Benefit of AMC Ecosystem

- High Integration
- Shorten Test & Verification
- Less R&D Effort
- Green and Better Sustainability

Compatible with Intel and ARM architectures

Convertible to SMARC, Qseven, PC/104, COMe mini

Omni SiP to support any Embedded Appliances

From AMC to AEC

We have developed an innovative carrier board matching the dimensions of an OSM-L module while preserving key I/O and functionalities. This compact design is ideal for Edge AI applications, where space efficiency and high performance are essential.

WHAT IS AEC?

The Advanced Embedded Computer (AEC) is a compact and modular interface solution developed on the OSM-L standard. It integrates the AIOC—a housed OSM module—with the MIOC carrier board, delivering support for both ARM and x86 architectures. This combination forms the SIOC, an all-in-one system-in-module designed to optimize performance in embedded and edge AI applications.

All-in-One Chip	Multi-I/O Chip	System In Omni Chip
AIOC	MIOC	SIOC

AEC FEATURES

Compatibility

Enable seamless development with standardized interfaces and machine-processable assembly.

Connection

Offer flexible packaging options for direct PCB soldering without connectors.

Modularity

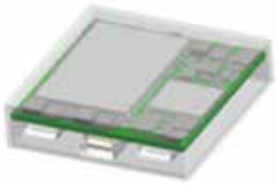
Simplify system design by integrating diverse modules into versatile target systems.

Fit

Achieve optimal balance between functionality, power efficiency, and cost performance.

World's first multifunctional OSML interface chip

- Compatible with both CISC & RISC, facilitating low switching costs for embedded application systems
- Seamlessly used along OSM-L standards, enhancing your product portfolio



Sleek and compact design, feature-rich, finely crafted

- Various I/O, memory, and power circuits can be integrated into MIOC

Easy-to-maintain/upgrade interface, suitable for mission-critical projects

- Adopts the OSM-L interface standard, minimizing the need for extensive FAE resources
- Requires minimal engineering resources for various specialized project applications

WHY AEC

AEC delivers exceptional flexibility with 6 AIOC and 3 MIOC variants, offering up to 18 configuration options to accommodate diverse system requirements. Its modular design allows quick adaptation to varying performance and I/O demands, significantly reducing redesign time. This streamlined approach simplifies integration, making AEC an ideal solution for compact, mission-critical environments where adaptability and efficiency are essential.

Dual Architecture, Low Switching Cost

AEC integrates AIOC and MIOC, supporting both x86 and ARM platforms to reduce switching costs and enable flexible integration.

Flexible & Modular Architecture

SIOC combines AIOC (OSM with housing) and MIOC, measuring just 47 x 47 x 10 mm, offering 18 flexible configurations with 6 AIOC and 3 MIOC choices.

Compact, Scalable, & Highly Integrable

AEC features a 5 x 5 cm form factor, adjustable height, and streamlined I/O, making it ideal for mission-critical, space constrained applications.

AIOC

- ADL-N/ASL
- i.MX 8M+
- G700/G510
- i.MX 93
- RISC-V (ESWIN)
- AM3354

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MIOC

- Type-C + USB + DP
- Type-C + USB + HDMI
- Type-C + USB *2

=

SIOC

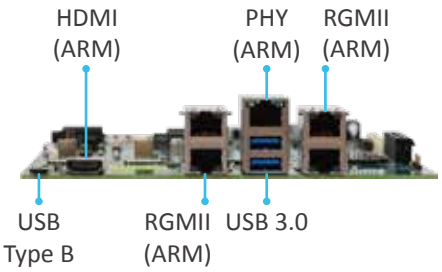
6x3=18

Sustainable Embedded Computing

Flexibility	Modular design with interchangeable AIOC and MIOC units allows fast customization for diverse application needs.
Scalability	Supports multiple performance tiers and I/O expansions, making it easy to scale across product lines.
Efficiency	Optimized for low-power consumption while maintaining strong computing performance in compact systems.
Longevity	Industrial-grade components and standard interfaces ensure long-term availability and support for embedded deployments.

MOSM-R400

OSML Mini-ITX Evaluation Kit

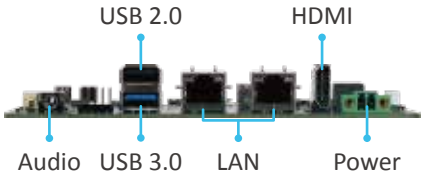


Specifications ▼

I/O Interface			
Display	2x eDP to display expansion board 1xRGB to DF13 connector 2ch LVDS (18/24 bit) 1x DSI to HDMI, 1x CSI	Audio	1 x I2S(HDA) to header 1 x I2S(HDA) to M.2 Key-E
USB	1x micro USB 2.0 (support OTG) 1x USB 2.0, 2x USB 3.0	Expansion	2x M.2 Key-M 2280 /1x M.2 Key-E 2242 1x SPI to Flash Socket 1x SPI to Header, 1x mikro bus (UART, SPI). 2x CAN to header,4xPWM to header, 1x JTAG to header, 2x ADC to header
Ethernet	4x GbE Lan RGMII (for ARM only)	UART	1x UART to USB (console) 3x UART to header 1x UART to M.2 Key-E
GPIO	5x GPIO group (8 bit per group)	**Mechanical**	
I2C	2x I2C	Form Factor	Mini-ITX
PCIe	1x PCIe x1 to M.2 key-E 2242, 1x PCIe x1 to M.2 Key-M 2280, 1x PCIe x4 to M.2 Key-M (2280 support mSATA), 1x PCIex4 slot	Dimension	170(L) x 170(W) mm

MOSM-R200

OSML 3.5 Evaluation Kit

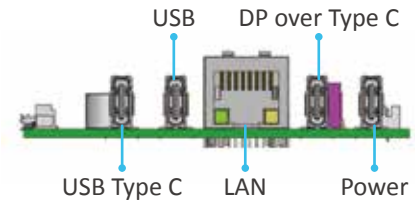


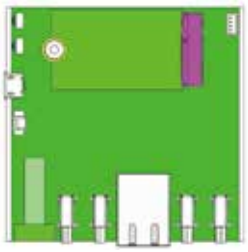
Specifications ▼

I/O Interface			
Display	1x HDMI ,1x eDP/ 24 bit dual channel	UART	1× M.2 E-Key for Wi-Fi/BT, 2x SPI to Header 1x UART, SPI, 2x CAN to header, 1xPWM to header, 1x JTAG to header, 1x ADC to header
USB	2x USB 2.0 Type A, 1x USB 3.0 Type A	**Mechanical**	
Storage	Depends on OSM	Form Factor	3.5”
Ethernet	2x GbE LAN	Dimension	146(L) x 102(W) mm
GPIO	8x GPIO		
I2C	1x I2C		
COM	2x RS232/ 422/ 485 (selectable)		
PCIe	1x PCIe x1 to M.2 key-E 2242		
Audio	1 x I2S(HDA) to header		

MOSM-R900

OSML System Board





Specifications ▼

General	
OSM Standard v1.2	Support OSM Size-L RISC module
Power Input	Standard Input : 12V via USB Type C

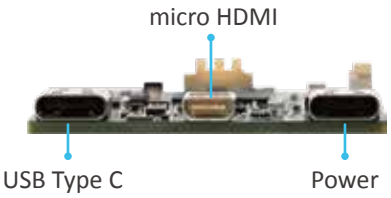
I/O Interface	
Display	1x DP over USB type-C
USB	2x USB 3.0 over USB type-C
Storage	Depends on OSM
Ethernet	1x GbE LAN RGMII (for ARM only)
PCIe	1x PCIe x1 to M.2 key-E 2242,

Environmental	
Storage Temperature	-40°C to 85°C
Operating Temperature	0°C to 70°C
Relative Humidity	5 % to 95 % (non-condensing)

Mechanical	
Dimension	75(L) x 75(W) mm

MIOC-MOOO

MIOC (Multi-I/O Chip)



Specifications ▼

General	
OSM Standard v1.2	Support OSM Size-L module
Power Input	Standard Input : 12V via USB Type C PD

I/O Interface	
Display	1x micro HDMI
USB	1x USB 3.0 over USB type-C
Storage	Depends on OSM
Ethernet	Wi-Fi module on board(Optional)

Environmental	
Storage Temperature	-40°C to 85°C
Operating Temperature	0°C to 70°C
Relative Humidity	5 % to 95 % (non-condensing)

Mechanical	
Dimension	45(L) x 45(W) mm

AMC stands for Advanced Micro Computing. It is an ecosystem designed for creating a simplified yet flexible embedded solution world.

The definition of AMC is a micro-system with limitation in a chip to make it reliable,simple & affordable.

The AMC system is built upon 45*45 mm LGA OSM/OSM-like modules, and is equipped with built-in DRAM, eMMC, and PMIC.

With the advantages of cost, omni functions, reliability and flexibility, the system design of AMC type fits various kinds of customer demand.

Being the expert of embedded systems, MiTwell provides full range of products including the OSML modules, converters for embedded modules, OSML carrier, and the system boards to form an AMC product family.

About MiTwell

MiTwell, Inc., founded in 2015, is a dedicated Advanced EAI Solutions Provider specializing in embedded AI solutions. We offer design, development, manufacturing, and integration services for system computers and peripherals. In the evolving AI landscape, MiTwell delivers cutting-edge intelligent modules and reliable, versatile system solutions, empowering customers to navigate market demands and challenges with confidence.

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