

DATASHEET

µQseven System-on-Module

Quad-core ARM Cortex-A7
featuring the Allwinner A31 application processor



70x40mm
µQseven



Secure
Element



4x 1.2GHz



up to 2GB



HDMI
1080p60



2chLVDS



CAN



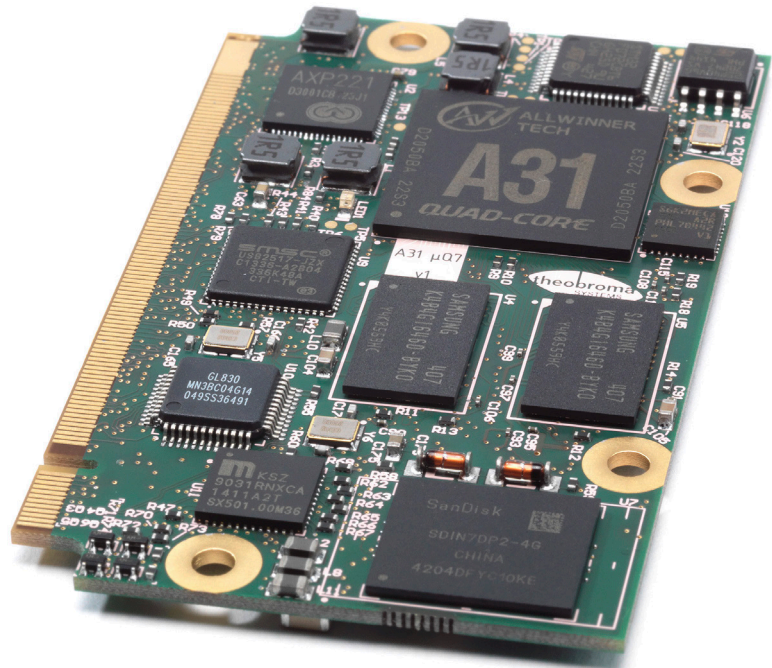
Gigabit
Ethernet



8xUSB2.0



SATA



Competitive performance for demanding applications

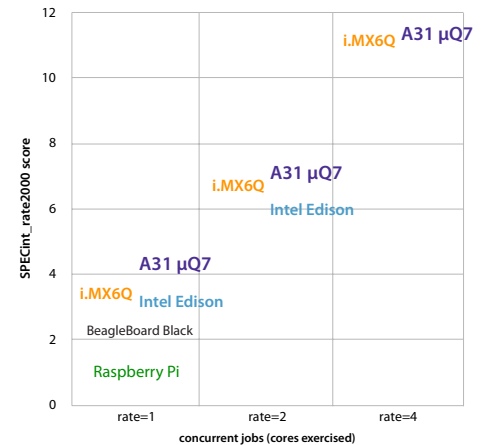
Supporting the A31 application processor for the industrial market, Theobroma Systems and Allwinner Technology finally make the performance and features expected in modern consumer devices accessible to other application areas.

The **A31- μ Q7** module provides a quick solution to build custom devices with a tablet-class processor:

- 4 ARM Cortex-A7 cores at up to 1.2GHz featuring a fully-pipelined VFPv4 and AdvSIMD vector unit)
- on-chip Gigabit-Ethernet controller
- advanced power management functionality

The **A31- μ Q7** module is not just another system-on-module: it is a building block for the realization of state-of-the-art devices featuring the prerequisite peripherals for flexible connectivity and rich user interfaces. It is backed by our professional services to offer a all-in-one solution for your development project, if desired.

SPEC CPU2000 results



Designed to address today's security challenges of connected applications

With the increasing importance of networked and connected applications—whether the target market is Smart Metering, Industry 4.0 or if building the next Internet-of-Things—new security challenges have arrived. The secure identification of individual field-deployed devices, secure key storage and the establishment of secure communication channels are today standard requirements in most applications.

Whether you are looking for a trusted solution for license-management, need protect your brand and intellectual property, or want to securely store and transmit application assets, our **A31- μ Q7** module offers a solution by integrating an advanced security module from STMicroelectronics:

- smart-card silicon and operating system compliant to the JavaCard 2.2 and Global Platform 2.2.1 specifications
- active and passive countermeasures to physical tampering and data extraction
- a differential power analysis (DPA) and differential fault analysis (DFA) countermeasures against side channel attacks
- supports cryptosystems based on both RSA and ECC algorithms

Building a secure solution from the application through the middleware integration to the back-end is never a trivial task. This is why a seasoned engineering team at Theobroma Systems, which successfully has built multiple Common Criteria evaluated products, is ready to provide professional services and engineering consulting for the development of secure products built on this μ Qseven module.

Support for the security module is available in the board-support package for the **A31- μ Q7** module.

Baseboard and starter kits available

A Mini-ITX baseboard, suitable for ARM-based Qseven and μ Qseven modules, is available for evaluation and development purposes.

- Get a quick start in the evaluation of our μ Qseven module.
- Use our baseboard as a readily available reference design.

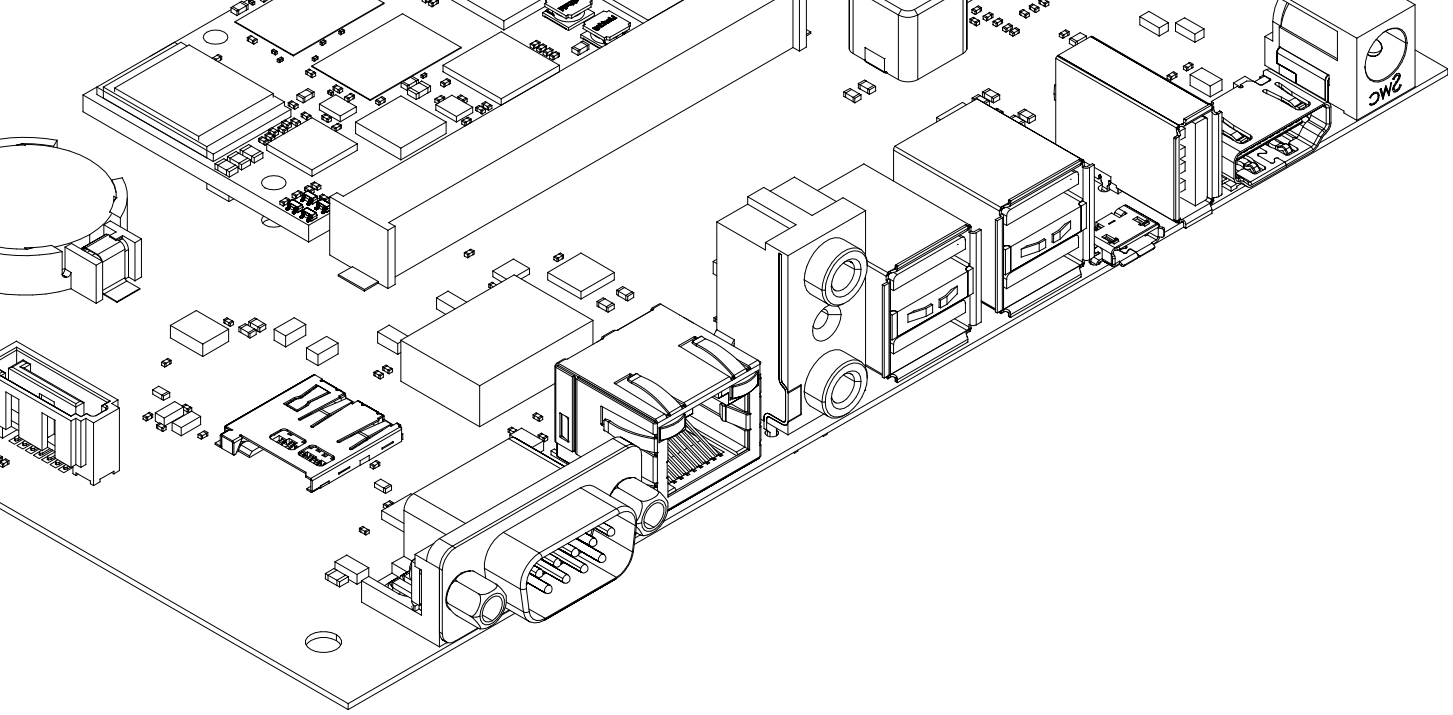
Technical Summary

Form factor	μQseven (70mm x 40mm)
Processor	Allwinner Technology A31 Quad-Core ARM Cortex-A7, up to 1.2GHz 256KB L1 cache and 1024KB L2 cache PowerVR™ SGX544MP2 GPU Multi-format video encoding/decoding co-processor
Memory	DDR3, up to 2GB on-module
NOR Flash	Up to 16MB SPI NOR flash on-module
eMMC Flash	Up to 64GB eMMC on-module
Ethernet	10/100/1000 Mbps (with an on-module triple-speed GbE PHY)
USB	8x USB 2.0 (one dual-role port) Note: Custom board variants may reduce the number of available USB 2.0 ports.
Serial ATA	Serial ATA II controller on-module Note: Custom board variants may exclude the Serial ATA II controller option.
Display	HDMI 1.4 (1080p60) Dual-channel LVDS
CAN	On-module communication offload controller for CAN
Power Management	DVFS for thermal and power management
Additional Interfaces	UART, 8x GPIO, I ² S, I ² C, SMBus, SPI, FAN
Security Module	Global Platform 2.2.1 compliant JavaCard environment On-module state-of-the-art, EAL4-certified smartcard controller Note: Custom board variants may exclude the security-module option.
Operating Systems	Linux Android
Power Supply	Operates directly from a single 5V supply
Consumption	TBD
Operating environment	Commercial 0°C to 60°C Industrial -20°C to 70°C Note: The availability of on-module peripheral options may vary on modules qualified for the industrial range.
Dimensions	70mm x 40mm (2.75" x 1.575")

Flexible customization options for high-volume applications

The A31-based μQseven module includes a number of available customization options to better adapt it to high-volume projects:

- configurations of either 8 or 2 USB 2.0 ports (each option includes one dual-role port)
- configurations with or without Serial ATA II capability
- main memory options ranging from 512MB to 2GB
- flash options ranging up to 64GB (eMMC) and up to 16MB (SPI NOR)



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