

DATASHEET

# Qseven System-on-Module

## Octa-Core ARM Cortex-A15/A7

featuring the Allwinner A80 application processor



70x70mm  
Qseven



Secure  
Element



4x 1.8GHz  
4x 1.2GHz



up to 8GB



HDMI  
1080p60



eDP



2chLVDS



MIPI-CSI



Gigabit  
Ethernet



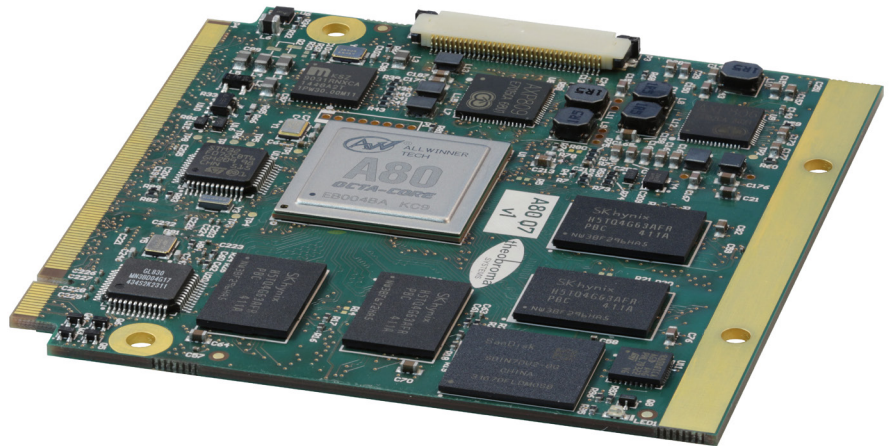
5xUSB2.0  
1xUSB3.0



CAN



SATA



## Accelerate your applications with 8 cores

The **A80-Q7** is pin-compatible with all other Qseven modules. Upgrading performance is as simple as “plug & play” with the **A80-Q7**.

## Scale with a big.LITTLE configuration

With the Allwinner A80, the power of a big.LITTLE configuration is available for your applications: by combining two independent CPU clusters on a single chip, applications can either use all resources or benefit from the power-savings of putting the unused resources to sleep.

The combination of 4 ARM Cortex-A15 cores (running at up to 1.8GHz) with a dedicated 2MB L2 cache and 4 ARM Cortex-A7 cores (running at up to 1.2GHz) with a dedicated 512KB L2 cache, can easily accommodate both power-conscious and performance-hungry applications. These high-performance and high-efficiency CPU clusters are connected through a cache-coherent interconnect fabric and have equal access to the integrated peripherals, which permits the operating system to transparently schedule processes across cores from each cluster.

	<b>A31-μQ7</b>	<b>A80-Q7</b>
<b>processing</b>	4x Cortex-A7	4x Cortex-A15 4x Cortex-A7
<b>max. memory</b>	2GB	8GB
<b>USB 3.0</b>	○	✓
<b>pin compatible</b>	✓	✓
<b>camera input</b>	○	✓

## Ready for visual computing and image processing applications

The **A80-Q7** module opens new application areas that require visual computing and image processing: through the standardised “feature-connector”, the A80’s camera serial interface (MIPI-CSI) enables the acquisition of image data with a maximum capture resolution of 1080p@60fps.

In addition to HDMI and a dual-channel LVDS video-output, the **A80-Q7** also provides a MIPI-DSI interface for the connection of low pin-count serial displays.

## USB 3.0 enabled

As a high-bandwidth interconnect to external peripherals and storage devices, the **A80-Q7** module now supports USB 3.0 either in host or device mode. Using a single USB 3.0 port, applications can transfer up to 5Gb/s.

## State-of-the-art security for your assets

The **A80-Q7** features the same secure element found on our other system-on-module products. Security and asset protection using an EAL4+ certified security module ensure that you will not have to sacrifice security for performance.

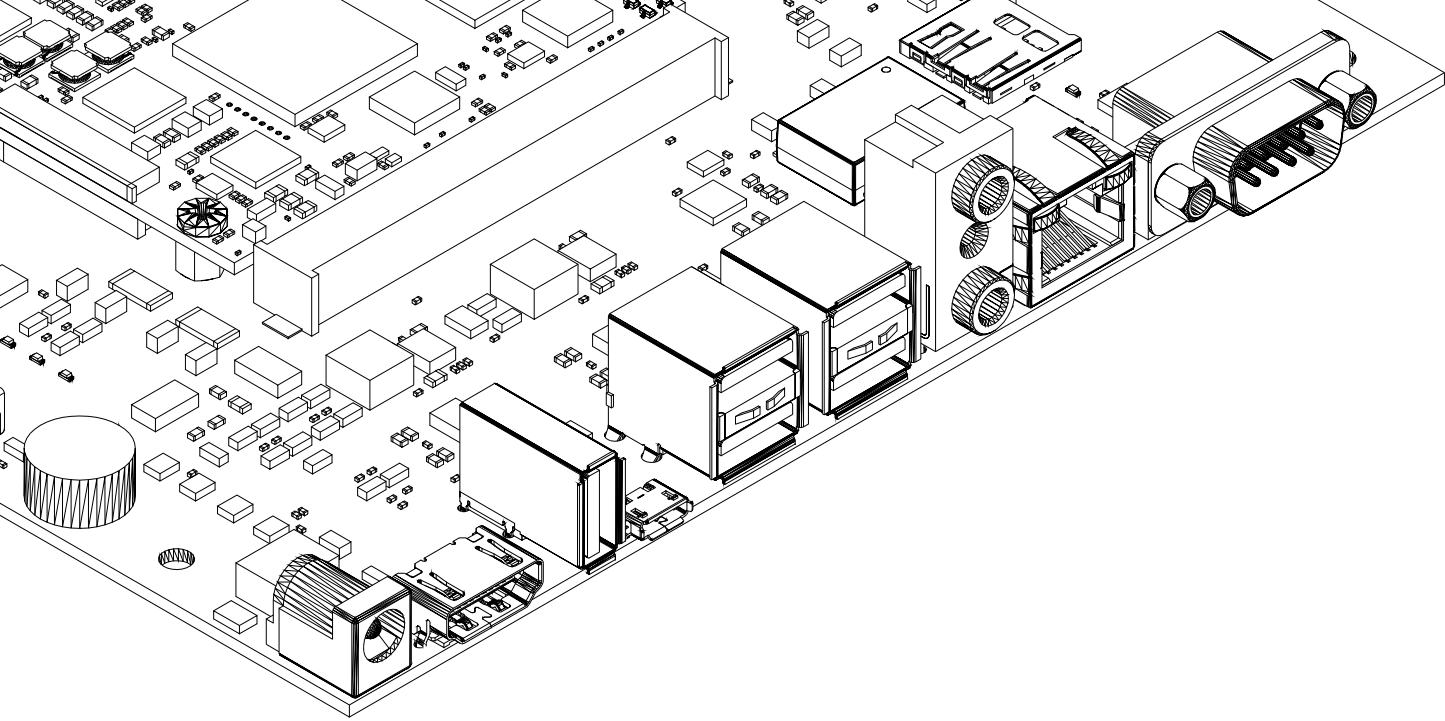
A GlobalPlatform 2.2.1 compliant JavaCard environment provides a trusted foundation for security applications including digital asset protection, secure key-storage and remote device authentication.

## Designed and supported in Vienna, Austria

Every module we design is backed by our expertise in system-level design, embedded software engineering and performance engineering. Our engineers support industrial end-users and maintain development tools for semiconductor vendors. Our experienced engineering team can augment your in-house design resources to bring your design to market faster.

## Technical Summary

<b>Form factor</b>	Qseven
<b>Processor</b>	Allwinner Technology A80 Octa-Core ARM Cortex-A7/A15, up to 1.8GHz 4x Cortex-A15 (256KB L1 cache and 2048KB L2 cache) 4x Cortex-A7 (256KB L1 cache and 512KB L2 cache) PowerVR™ Series6 GPU Multi-format video encoding/decoding co-processor
<b>Memory</b>	DDR3, up to 8GB on-module
<b>NOR Flash</b>	Up to 16MBit SPI NOR flash on-module
<b>eMMC Flash</b>	Up to 128GB eMMC on-module
<b>Ethernet</b>	10/100/1000 Mbps (with an on-module triple-speed GbE PHY)
<b>USB</b>	5x USB 2.0 Note: Custom board variants may reduce the number of available USB 2.0 ports 1x USB 3.0 SuperSpeed (dual-role)
<b>Serial ATA</b>	Serial ATA II controller on-module Note: Custom board variants may exclude the Serial ATA II controller option.
<b>Display</b>	HDMI 1.4 (1080p60) Dual-channel LVDS Embedded DisplayPort (eDP) DSI (feature connector)
<b>Camera</b>	CSI according to Q7 Camera Feature Specification
<b>CAN</b>	On-module communication offload controller for CAN
<b>Additional Interfaces</b>	UART, 8x GPIO, I <sup>2</sup> S, I <sup>2</sup> C, SMBus, SPI, FAN
<b>Security Module</b>	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.
<b>Operating Systems</b>	Linux Android
<b>Power Management</b>	DVFS for thermal and power management
<b>Power Supply</b>	Operates directly from a single 5V supply
<b>Consumption</b>	< 5W
<b>Operating environment</b>	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
<b>Dimensions</b>	70mm x 70mm (2.75" x 2.75")



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