ADLINK
Leading EDGE COMPUTING

For Stationary and Mobile Applications

QSeven® Modules

Next Generation of Power Efficient Mobile Applications in Embedded



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QSeven Introduction

ADLINK provides a wide range of embedded computing products and services to the test & measurement, automation & process control, gaming, communications, medical, network security, and transportation industries. ADLINK products include those based on various computer-on-modules (COMs) standards like Qseven®. As an initial member of SGeT (Standardization Group for Embedded Technologies), ADLINK contributes to the development of Qseven® specifications.

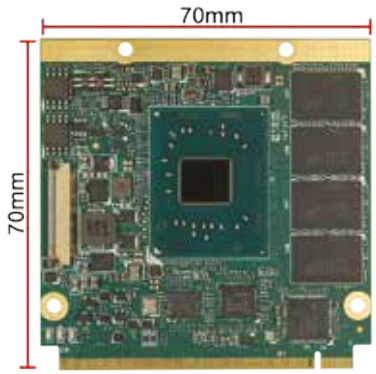
Fastest Time to Market

The Qseven® is a versatile small form factor computer module standard targeting applications that require ultra-low power, low cost and high performance. Qseven® modules are used as building blocks for portable and stationary embedded systems. Qseven® modules can also be used in conjunction with carrier boards that implement application specific features such as audio codecs, touch controllers, wireless devices, etc. This modular approach allows scalability, faster time to market and performance diversification while maintaining lower costs, low power and small physical size.

Small Footprint, Low Power Envelope

The Qseven® concept is an off-the-shelf, multi-vendor, Computer-on-Module that integrates all the core components of a common PC and is mounted onto an application specific carrier board. Qseven® modules have a standardized form factor of 70 mm x 70 mm or 40 mm x 70 mm and have specified pinouts based on the high-speed MXM connector, regardless of the vendor. The Qseven® module provides the functional requirements for an embedded application, which include, but are not limited to, graphics, audio, mass storage, network and multiple USB ports. A single ruggedized 230 pin MXM edge connector provides the carrier board interface to carry all the I/O signals to and from the Qseven® module. This MXM connector is a well-known and proven high-speed signal interface connector that is commonly used for PCI Express graphics cards in notebooks. The Qseven® footprint is smaller than that of COM Express®, ETX® or XTX, responding to system designers' needs for minimal space. Qseven's power consumption envelope is below a 12 Watts target, whereas SMARC's target is below 6 watts and COM Express® can be well above 20 watts. Therefore, Qseven® designs provide mid-range power values between those of SMARC® and COM Express®. The Qseven® pincount is 230 compared to 314 and 440 for SMARC® and COM Express® (Type 2), respectively. Thus, it is optimized for designs with lower board-to-board pin requirements.

Qseven® 2.1 pinout



- 4x PCI Express
- 2x SATA, max. 8x USB2.0, max. 3x USB3.0
- Triple display support
- LVDS, eDP, HDMI
- HDA or I²S
- Ethernet 10/100Mbit/Gigabit
- 1x UART
- 1x LPC
- 1x SDIO 8-bit for SD/MMC cards
- 1x SMBus
- 1x I²C
- 1x SPI
- 1x CAN
- Watchdog trigger, power button, power good, reset button
- LID button, sleep button
- Suspend to RAM (S3 mode), wake, battery low alarm
- Thermal & fan control

Qseven Carrier Board & Starter Kit

- Qseven compliant carrier for standard Qseven modules
- Support of all mandatory I/Os
- Starter kit with ATX power supply, USB stick, SD card and power cables



Selection Guide

Module







Model Name	Q7-AL	Q7-BW	Q7-BT
Form Factor & Compatibillity	Qseven v2.1 Standard size: 70 x 70 mm	Qseven v2.0 Standard size: 70 x 70 mm	Qseven v2.0 Standard size: 70 x 70 mm
CPU	Intel® Atom™ E3900 Series, Pentium™ N4200 or Celeron™ N3350 SoC	Intel® Pentium™ and Celeron™ Processor N3000 Series SoC	Intel® Atom™ Processor E3800 Series SoC
DRAM	Up to 8 GB LPDDR4 at 2400 MT/s	Up to 8GB DDR3L at 1600 MT/s	Up to 4GB DDR3L at 1333/1066MHz
Cache	L2: 2 MB	L2: 2 MB	L2: 512kB to 2MB
Integrated Graphics Support	DirectX 12/11.2, OpenGL 4.2/3.3, OpenCL 2.0 Decode: H.265, H.264, MPEG2, MVC, VC-1, WMV9, JPEG, VP8 Encode: H.264, MVC, JPEG	DirectX 12/11.2, OpenGL 4.2/3.3, OpenCL 1.2 Decode: H.265, H.264, MPEG2, MVC, VC-1, WMV9, JPEG, VP8 Encode: H.264, MVC, JPEG	DirectX 11.1, OGLES 2.0, OGL 3.2 Decode: H.264, MPEG2, VC-1, VP8 Encode: H.264 and MPEG2
LAN	Intel® MAC/PHY i210-IT/AT 1x GbE	Intel® MAC/PHY i211 1x GbE	Intel® MAC/PHY i210IT 1x GbE
USB	2x USB 3.0 6x USB 2.0 host	1x USB 3.0 6x USB 2.0 host	1x USB 3.0 5x USB 2.0 host 1x USB 2.0 client
Serial ATA	2x SATA or 1x SATA and 1x SATA SSD	2x SATA or 1x SATA and 1x SATA SSD	2x SATA or 1x SATA and 1x SATA SSD
Audio	HDA	HDA	HDA
PCI Express	3x PCIe x1 Gen2	3x PCIe x1	3x PCIe x1
eMMC	4GB to 64GB (optional)	4GB to 64GB (optional)	4GB to 64GB (optional)
SEMA Support	Yes	Yes	Yes
Camera	2x MIPI CSI 4L/2L camera interfaces	2x MIPI CSI 4L/2L camera interfaces	1x MIPI CSI 4L/1L camera interface
Power Supply	5.0 V DC ±5%	5.0 V DC ±5%	5.0 V DC ±5%
Operating Temperature	0°C to +60°C -40°C to +85°C	0°C to +60°C	0°C to +60°C -40°C to +85°C
Standard OS (BSP Support)	Windows 10 IoT Enterprise, Windows 10 IoT Core, Yocto Linux	Windows 7, 8.1, 10, Yocto Linux, Android	Windows 7, 8, WEC7, Yocto Linux

Baseboard



Model Name	Q7-BASE
Displays	HDMI, Dual channel LVDS 18/24-bit with backlight connector
SDIO	4/8-bit SDIO for SD/MMC
HDA	1x HDA codec ALC886
Audio	1x line in, 1x line out, 1x mic, 1x S/PDIF in/out
System Connector	1x SPI, 1x SMBus, watchdog, BIOS disable, battery low, thermal
Serial	1x UART
CAN	1x CAN
USB	5x USB2.0 host, 1x USB2.0 client, 1x USB3.0
PCI Express	3x PCIe x1, 1x miniPCIe/USB3
SATA	2x SATA
Ethernet	1x GbE
Boot source	Select SPI, eMMC, SD card, SATA
Misc	2x COM, 1x LPT, 2x PS/2 for keyboard & mouse, 7-segment display for BIOS post code, status LEDs and control buttons, battery
Power Modes	ATX/AT mode
Standard Voltage input	5V, 12V, 3.3V from ATX power connector
Board Connector	MXM2 230-pin edge connector

Note: All specifications are subject to change without further notice.

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