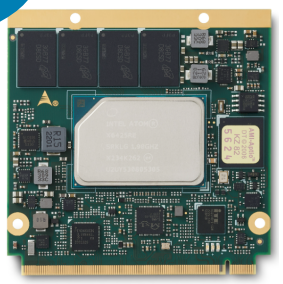
Q7-EL

Qseven® Standard Size Module with Intel® 6th Gen Atom® X6000

Preliminary



Features

- 2/4-core Intel® Atom® Series
- Q7 Revision 2.1 compliant
- Up to 16GB LPDDR4
- Dual channel LVDS (18/24-bit)
- eDP, DP++/HDMI
- 2x SATA Gen3 / onboard eMMC up to 256GB
- 2x CAN bus, USB 2 / USB 3 interfaces
- 2.5GbE (TSN capable)

Specifications

Core System	SoC	Intel® 6th Gen Atom® X6000 processors
	Memory	2,4,8,16GB LPDDR4 (in-band ECC)
	Cache	1.5MB system L2 cache 4MB LLC
	Security	• Intel® Boot Guard • Intel® OS Guard • Intel® Platform Trust Technology (PTT) • Intel® AES-New Instruction, Intel SHA Extensions • Intel® Secure Key • Digital Rights Management HDCP 2.3-Playready 4 • Intel® Virtualization Technology (VT) • Intel® Dynamic Application Loader (DAL) • Optional TPM 2.0 module
Video	GPU Core	3 Displays with Intel UHD Graphics

Processor	Cores	TDP
Intel® Atom® X6425RE	4 Cores, 1.8GHz	12W TDP
Intel® Atom® X6414RE	4 Cores, 1.5GHz	9W TDP
Intel® Atom® X6413E	4 Cores, 1.5GHz	9W TDP

Note: Some processor SKUs are supported by project basis only. Please contact our ADLINK representative for details.

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Specifications

Video	GPU Feature Support	11th Gen Intel® graphics core architecture with up to 32 execution units (selected SKUs) Supports 3x independent displays, 2D and 3D graphics hardware acceleration Supports DirectX 12, OpenGL 4.2, OpenCL 1.2 Video decode HW acceleration for H.265/HEVC, H.264, MPEG2, MVC, VC-1, WMV9, JPEG/MJPEG, VP8, VP9 Video encode HW acceleration for H.265/HEVC, H.264, MPEG2, MV
	HDMI	HDMI 2.0b 4K@60Hz
	LVDS	Dual channel LVDS 18/24 bit
Audio	Codec	HDA Audio codec (located on carrier)
Ethernet	LAN	10/100/1000/2.5Gbit Ethernet
System Storage	SDIO	1x SDIO (4-bit), compatible with SD/SDIO standard, up to version 3.0
	eMMC	16/32/64/128/256GB (build option), compatible with eMMC 4.41, 4.51, 5.0, 5.1
	SATA	2x SATA Gen3
Extension Buses	USB	2x USB 3.0, 6x USB 2.0
	UART	1x UART
	SPI	1x SPI
	I2S	1x I2S interface, 16/32-bit resolution, sample rate up to 192kHz
	I2C	1x I2C interface • Supports 7/10-bit address mode • Software programmable clock frequency of 100kbits/s in Standard mode, 400kbits/s in Fast mode, or 1Mbit/s in Fast mode Plus
	SMBus	1x SMBus
	LPC	1x LPC
	GPIO	8x GPIO with interrupt, 1x GPIO with PWM
	PCIe	4x PCIe x1 Gen3
SEMA® Board Controller		Supports: Voltage/Current monitoring, Power Sequencing, Logistics and Forensic Information, Flat Panel Control, I²C Bus Control, GPIO Control, User Flash, Failsafe BIOS (dual BIOS), Watchdog Timer and Fan Control
Debug Header		30-pin multipurpose flat cable connector for use with DB-30 debug module Provides JTAG, BMC access, UART, power testpoints, diagnostic LEDs, Power, Reset, Boot configuration
Power	Standard Input	5Vdc +/- 5%

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Specifications

Mechanical and Environmental	Form Factor	SGET Q7 Specification 2.1
	Dimension	Standard size: 70 mm x 70 mm
	Operating Temperature	Standard: 0°C to 60°C (storage: -20°C to 60°C) Extreme Rugged: -40°C to 85°C (build option, selected SKUs)
	Humidity	5-90% RH operating, non-condensing 5-95% RH storage (and operating with conformal coating)
	Shock and Vibration	IEC 60068-2-64 and IEC-60068-2-27 MIL-STD-202F, Method 213B, Table 213-I, Condition A and Method 214A, Table 214-I, Condition D
	HALT	Thermal Stress, Vibration Stress, Thermal Shock and Combined Test
Operating Systems	Standard Support	Yocto Linux BSP, Windows IoT Enterprise
	Extended Support (BSP)	Vxworks

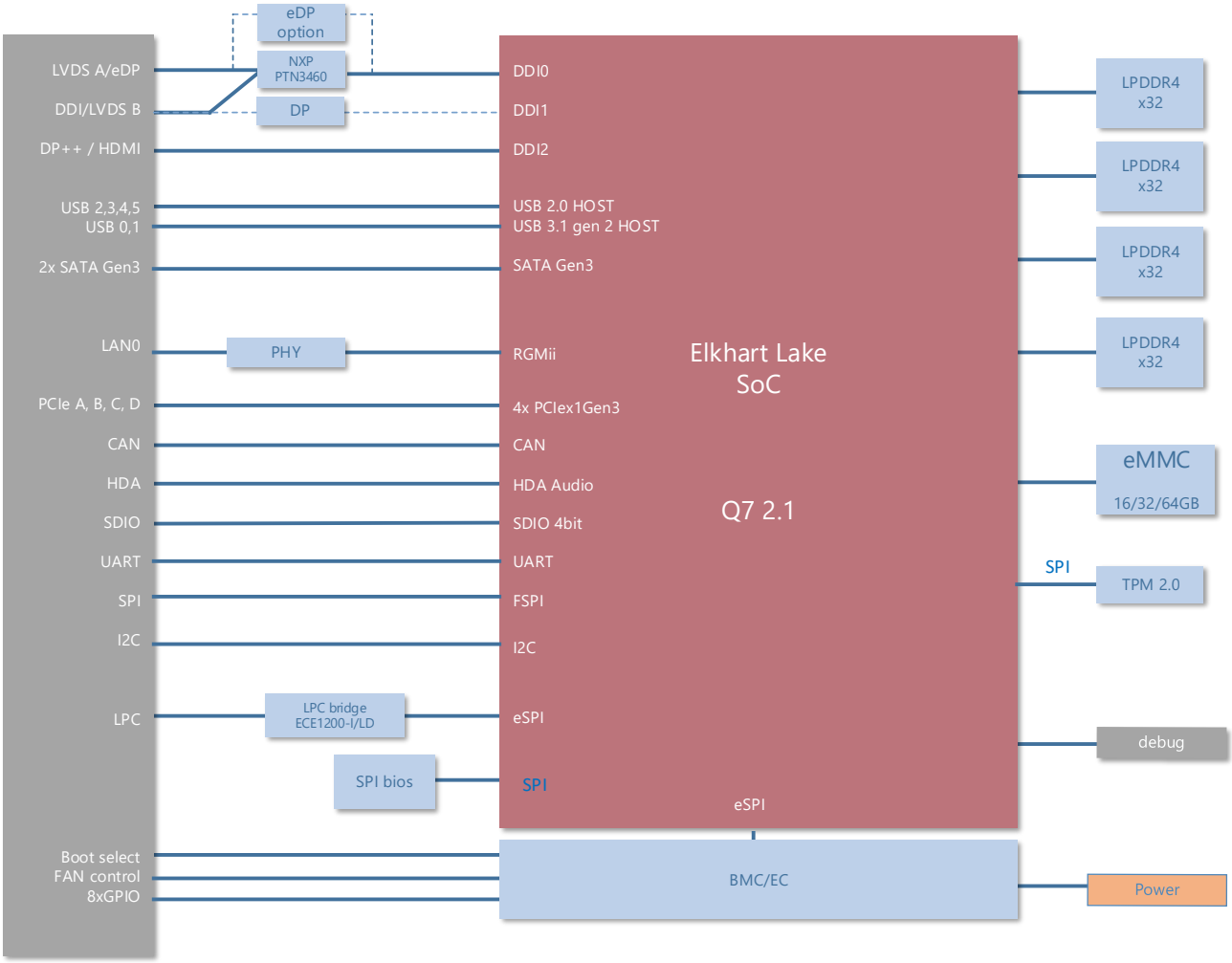
Ordering Information

Module	
Q7-EL-x6414RE-8G-32G-CT	Module with Quad-core Intel Elkhart Lake x6414RE, 8 GB LPDDR4, 32 GB eMMC, 0°C to 70°C
Q7-EL-x6425RE-8G-32G-CT	Module with Quad-core Intel Elkhart Lake x6425RE, 8 GB LPDDR4, 32 GB eMMC, 0°C to 70°C
Q7-EL-x6413E-8G-32G-ER	Module with Quad-core Intel Elkhart Lake x6413E, 8 GB LPDDR4, 32 GB eMMC, -40°C to 85°C
Q7-EL-x6414RE-8G-32G-ER	Module with Quad-core Intel Elkhart Lake x6414RE, 8 GB LPDDR4, 32 GB eMMC, -40°C to 85°C
Q7-EL-x6425RE-8G-32G-ER	Module with Quad-core Intel Elkhart Lake x6425RE, 8 GB LPDDR4, 32 GB eMMC, -40°C to 85°C

Note: Some processor SKUs are supported by project basis only. Please see the user's manual for details or consult an ADLINK representative.

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Block diagram



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