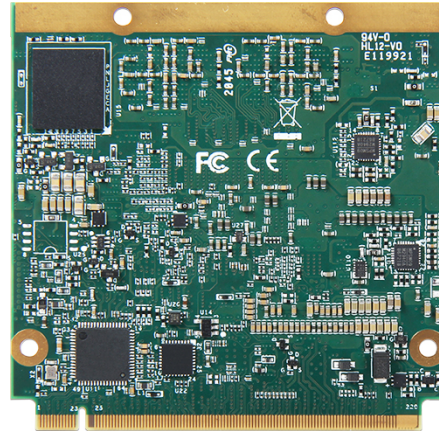
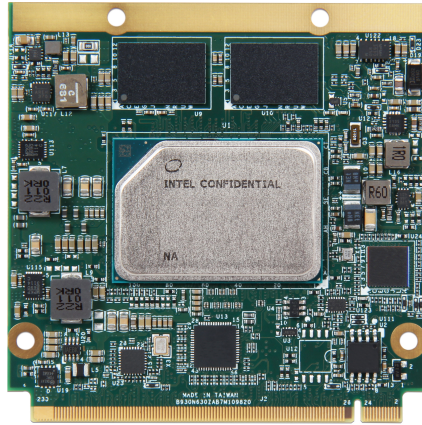




Portwell's PQ7-M109 is designed with latest Intel Atom® x6000E/ Celeron®/Pentium® processor (codenamed Elkhart Lake), featuring 2x graphic performance and 1.5x overall CPU performance improvement than previous generation platform.

The PQ7-M109 also supports a wide industrial temperature range from -40°C to 85°C. Built with qualified industrial-grade components, PQ7-M109 Qseven 2.1 module is an ideal building block for applications in automation, security, transportation and a variety of harsh environments.

FEATURES

- Intel Atom® x6000E / Celeron® / Pentium® processors (Codenamed Elkhart Lake)
- Onboard LPDDR4 SDRAM up to 8GB, support In-Band ECC for error correction
- High performance Intel® Gen 11 Graphics
- 4x PCI Express 3.0 x1, LPC interface for legacy device
- Onboard eMMC 5.1
- Onboard TPM 2.0
- Options for industrial temperature range -40°C to 85°C

GENERAL

Processor	- Intel® Celeron® N6211, Dual cores, 1.2 GHz, 6.5W TDP - Intel® Celeron® J6413, Quad cores, 1.8 GHz, 10W TDP - Intel Atom® x6211E, Dual cores, 1.2 GHz, 6W TDP - Intel Atom® x6413E, Quad cores, 1.5 GHz, 9W TDP - Intel Atom® x6425E, Quad cores, 1.8 GHz, 12W TDP
Cache	4 MB L3 cache
Memory	- Onboard 2G/4G/8G LPDDR4 with 3200 MT/s - Dual memory channel, 64bit, In-Band ECC (Embedded)
Storage	Onboard eMMC 5.1 flash up to 256 GB
BIOS	AMI UEFI with Fast Boot support Display Auto Detection Flash Update Password Lock OEM Logo for startup screen
Ethernet	1x Intel® i210 AT/IT
Expansion Interface	4x PCIe Gen 3 x1
Operating System	Microsoft® Windows 10 IoT Core/ Enterprise (64-bit), Linux By project request: Yocto, Android, Vxworks

I/O INTERFACE

Audio	Intel® HD Audio integrated in SoC
USB	2x USB 3.2 Gen 1, 6x USB 2.0 / 1x USB 3.2 Gen 1, 8x USB 2.0
SATA	2x SATA 3.0 (6 Gbit/s)
SDIO	1x SDIO 3.0 (4-bit)
Others	1x I²C, 1x HDA, 1x JTAG, 1x SMBus, 1x LPC, 1x UART, WDT, 1x CANbus

DISPLAY

Graphic Controller	Intel® Gen 11 LP Graphics supporting DirectX 12 OpenGL 4.5 OpenCL 1.2 OpenGL ES 3.1 HW accelerated video decoding HEVC/H.264/MPEG2/VP9/VC-1/WMV9/MJPEG Encoding HEVC/ H.264/VP9/MJPEG HDCP 1.4/2.2 for 4K premium content protection
Display Interface	- DDI0: 24-bit dual-channel LVDS up to 1920x1200@60Hz - DDI1/2: DisplayPort 1.4 up to 7680x4320@30Hz/ 4096x2160@60Hz - Or HDMI 2.0b up to 4096x2160@60Hz

Mechanical & Environment

Dimension	Qseven® 2.1: 70(L) x 70(W) mm; 2.75"(L) x 2.75"(W)
Power Input	5V DC ±5%
Power Management	ACPI 5.0 compliant Fully Integrated Voltage Regulator (FIVR)
Power Consumption	TBD
Environment	Operating Temperature - Commercial: 0°C to 70°C, w/ 0.5m/s airflow - Embedded: -40°C to 85°C w/ 0.5m/s airflow Humidity: 0-95% RH, non-condensing



PQ7-M109

Qseven Module with Intel Atom® x6000E Series/
Pentium®/Celeron® N and J Series Processors

Block Diagram

