

**Qseven® Module with Intel Atom® x7000E Series Processors,
Intel® Processor N Series, and Intel® Core™ i3 N-series Processors**

PQ7-M21

- Power-efficient Intel Atom® x7000E series and Intel® Processor N series, and performance and value balanced Intel® Core™ i3 N-series processors (formerly Alder Lake-N)
- Onboard LPDDR5 SDRAM up to 16GB
- Multiple display support (24-bit LVDS/eDP, HDMI/DP)
- Four PCIe Gen 3 lanes, two USB 3.2 and up to six USB 2.0
- Two SATA 3.2, onboard eMMC 5.1, onboard TPM

Specifications

CPU

Intel Atom® x7425E, 4x cores, 1.5GHz, 12W TDP
 Intel Atom® x7213E, 2x cores, 1.7GHz, 10W TDP
 Intel Atom® x7211E, 2x cores, 1.0GHz, 6W TDP
 Intel® Processor N50, 2x cores, 1.0GHz, 6W TDP
 Intel® Processor N97, 4x cores, 2.0GHz, 12W TDP
 Intel® Processor N200, 4x cores/4x threads, 1.0GHz, 6W TDP
 Intel® Core™ i3-N305, 8x cores/8x threads, 1.8 GHz, 15W TDP

Cache

6MB L2; 6MB Intel Smart Cache (Core i3 N-series & Processor N series)

Memory

Onboard 4G/8G/16G LPDDR5 with 4800 MT/s
 In-Band ECC (Intel Atom SKUs)

Storage

Onboard eMMC 5.1 flash up to 256GB

DisplayPort Interface

LVDS | eDP

24-bit single-/dual-channel LVDS up to 1920x1200 @ 60Hz;
 or eDP 1.3 (4096x2160p @ 60Hz) (signal shared with LVDS via BOM selection)

DisplayPort | HDMI

DisplayPort 1.4 up to 8K (7680x4320) @ 30Hz / 4K (4096x2160) @ 60Hz; or
 HDMI 2.0b up to 4K (4096x2160) @ 60Hz (signal shared with DP by jumper or
 active connector on carrier board)

Ethernet

1x Intel® I226-IT

Audio

Intel® High Definition Audio

I/O Interfaces

PCIe

4x PCIe Gen3

USB

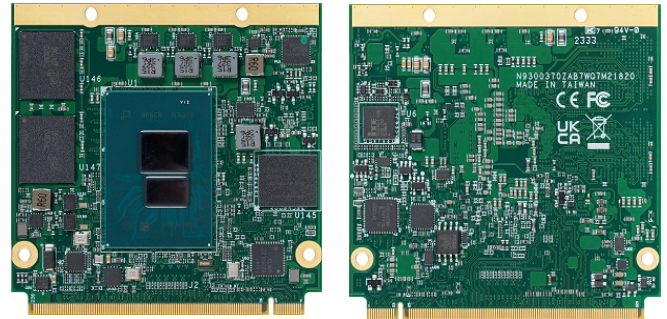
2x USB 3.2, 6x USB 2.0

SATA

2x SATA 3.2

Other I/O Interfaces

1x CAN bus (edge finger, USB to CAN bus via BOM option), 1x I²C, 1x HDA, 1x
 SMBus, 14x GPIO, 1x PWM, 1x UART (edge finger), 1x WDT, 1x Fan Control



Video

GPU Feature Support

Intel® UHD Graphics driven by Xe architecture
 OpenGL 4.6 / OpenCL 3.0 | 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

Embedded BIOS

AMI UEFI with Fast Boot support | Display Auto Detection |
 Flash Update | Password Lock | OEM Logo for startup screen

Mechanical and Environmental

Form Factor

Qseven 2.1

Dimension

Qseven module, 70 mm x 70 mm

Operating Temperature

0°C to +70°C, w/ 0.5m/s airflow

Humidity

0-95% RH operating, non-condensing

Power

Standard Input

5V DC ±5%

Power Management

ACPI 5.0 compliant | Fully Integrated Voltage Regulator (FIVR)

Power Consumption

6W~15W (CPU)

Operation System

Microsoft® Windows 10 IoT Enterprise LTSC 2021 (64-bit),
 Linux by project request: Yocto LTS kernel 2022

Block Diagram

PQ7-M21

