TQMxE39M

COM Express™ Mini Module with Intel® Atom™ x5/x7 E3900

The TQ module TQMxE39M is based on the latest generation of Intel® Atom™, Pentium® and Celeron® processors (code named "Apollo Lake-I"). It achieves a new level of compute performance, security and media processing performance in a very compact form factor to empower real-time computing, industrial automation, digital surveillance, aviation, medical, retail and more. The module corresponds to the international established PICMG® standard COM Express® Mini (COM.0 R2.1) with type 10 pinout. 8 USB ports – including 2x USB 3.0 – and up to 4 PCIe lanes natively supported by the processor enable high bandwidth communication with peripherals and additional interfaces on the carrierboard. With the latest Intel® graphics processor integrated the module delivers 4K high resolution graphics output, immersive 3D processing and greatly increased video encode and playback performance. The integrated TQMx86 board controller enables high flexibility through "flexiCFG" and supports thermal management, watchdog and "Green ECO-Off" with a minimum of standby power.
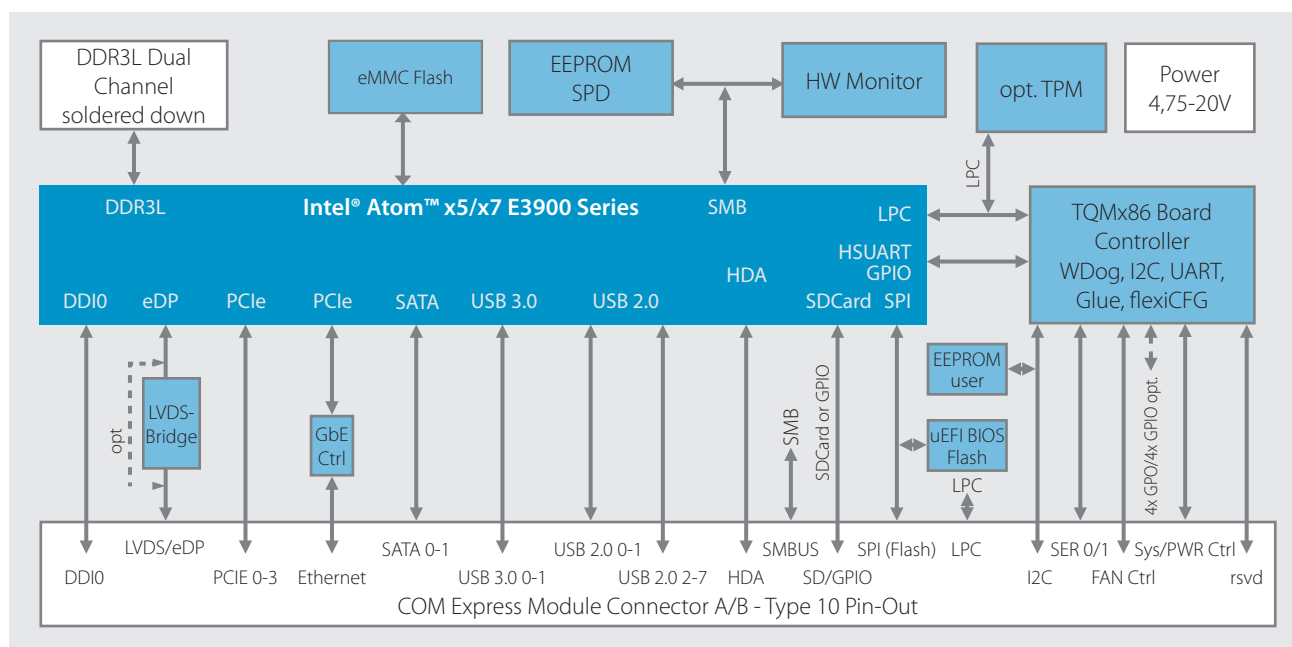
Based on

COM ✦ Express

(intel) Technology Provider
Platinum 2016

Highlights:

- Intel® Atom™ x5/x7 E3900 series ("Apollo Lake-I"), Pentium® N4200 and Celeron® N3350 processors
- Dual/Quad core computing power with up to 2.5 GHz
- 4/8 GB DDR3L (dual channel), soldered
- High-speed interconnected with Gigabit Ethernet, 8x USB (3.0 / 2.0) and up to 4 PCIe lanes
- Dual Display support with DP/HDMI (up to 4K UHD) and eDP or LVDS
- Up to 64 GB eMMC Flash, soldered
- Extended temperature support
- Watchdog und thermal management
- Highest reliability, 24/7 certified
- Conformal coating (optional) and optimized cooling solutions for ruggedized applications

Block diagram TQMxE39M

Technical details

CPU

Intel® Atom™ x5/x7 E3900 („Apollo Lake-I")
Atom™ x5-E3930 2x1.8 GHz, 6.5 W
Atom™ x5-E3940 4x1.8 GHz, 9.5 W
Atom™ x7-E3950 4x2.0 GHz, 12 W
Celeron® N3350 2x2.4 GHz, 6 W
Pentium® N4200 4x2.5 GHz, 6 W

Memory

DDR3L: 4/8 GB non-ECC, Dual Channel
eMMC: 4-64 GB
EEPROM: 32 kbit (24LC32)

Graphics

1x Digital Display Interface (DDI)
for DP 1.2a, eDP 1.3, HDMI 1.4b
1x eDP1.4/ Single Channel LVDS
(also usable for second external monitor)

System interfaces

1x Gigabit Ethernet (Intel® i210)
(external IEEE1588 sync optional through TQ flexiCFG)
2x USB 3.0
6x USB 2.0

Peripheral interfaces

2x SATA 3.0 (up to 6Gb/s), eSATA capable
4x PCIe 2.0 (up to 5Gb/s)
1x LPC bus
1x Intel® HD audio (HDA)
1x I²C, (2nd I²C optional) (master/slave capable)
1x SMBus
1x SPI (for exteral uEFI BIOS flash)
2x Serial port (Rx/Tx, legacy compatible)
(4 wire optional through TQ flexiCFG)
1x SD card interface / optional 8x GPIO (multiplexed)

Security components

TPM (SLB9660 TPM 1.2, alternatively SLB9665 TPM 2.0)

Others

TQMx86 board controller with watchdog and flexiCFG
Hardware monitor

Power supply

Voltage: 4.75 V - 20 V
            4.75 V - 20 V Standby (optional)
            3 V Battery
Power: typ. 3 - 8 W / max. 14 W
            (Green ECO-Off: < 0.1W)

Environment

Standard temperature: 0°C…+60°C
Extended temperature: -40°C…+85°C

Form factor / dimensions

COM Express™ Mini, type 10, 84 mm x 55 mm

Ordering information

TQMxE39M-xx

The current standard variants can be found on the TQ product website www.tq-group.com/en/TQMxE39M

Options:
CPU, memory, TPM, eMMC, eDP/LVDS, special configurations

Accessory

TQMxE39M-HSP

Heatspreader for TQMxE39M according to the COM Express™ specification

TQMxE39M-HSP-LP

Heatspreader for TQMxE39M, low profile for very flat designs

Evaluation platform MB-COME10-1

Mainboard for COM Express™ Minimodules, Type 10
Interfaces: DP, eDP/LVDS, 2x Gb Ethernet, 4x USB,
3x COM, audio, mini PCIe, mSATA, 2.5" SSD, SD card,
riser extension with PCIe and USB, fan, debug
170 mm x 170 mm

TQMx86 software tools

for uEFI BIOS programming and to adapt / configure setup default values (including multi config), boot logo,…

Technology in Quality