



TQMxE39S

SMARC 2.0 Module with Intel® Atom™ x5/x7 E3900

The TQ module TQMxE39S is based on the latest generation of Intel® Atom™, Pentium® and Celeron® processors (code named "Apollo Lake"). It achieves a new level of compute performance, security and media processing performance in an extremely compact form factor. The module corresponds to the modern SGET Standard SMARC 2.0 ("Smart Mobility ARChitecture"). The TQMxE39S targets small, low power and low cost applications with preferences in the embedded mobile market. Three 4K display outputs powered by the integrated Intel® graphics processor enable applications with impressive user experience. Immersive 3D processing and greatly increased video encode and playback performance improves high resolution multimedia content. High speed interfaces like Gigabit Ethernet, PCIe, USB 3.0 and 6Gbps SATA ensure high communication bandwidth. SPI, SDIO and serial interfaces extend the communication path to the carrierboard. Onboard eMMC up to 64 GB and the option for Dual-Channel LVDS or native eDP enable flexibility and reduce overall BOM cost.

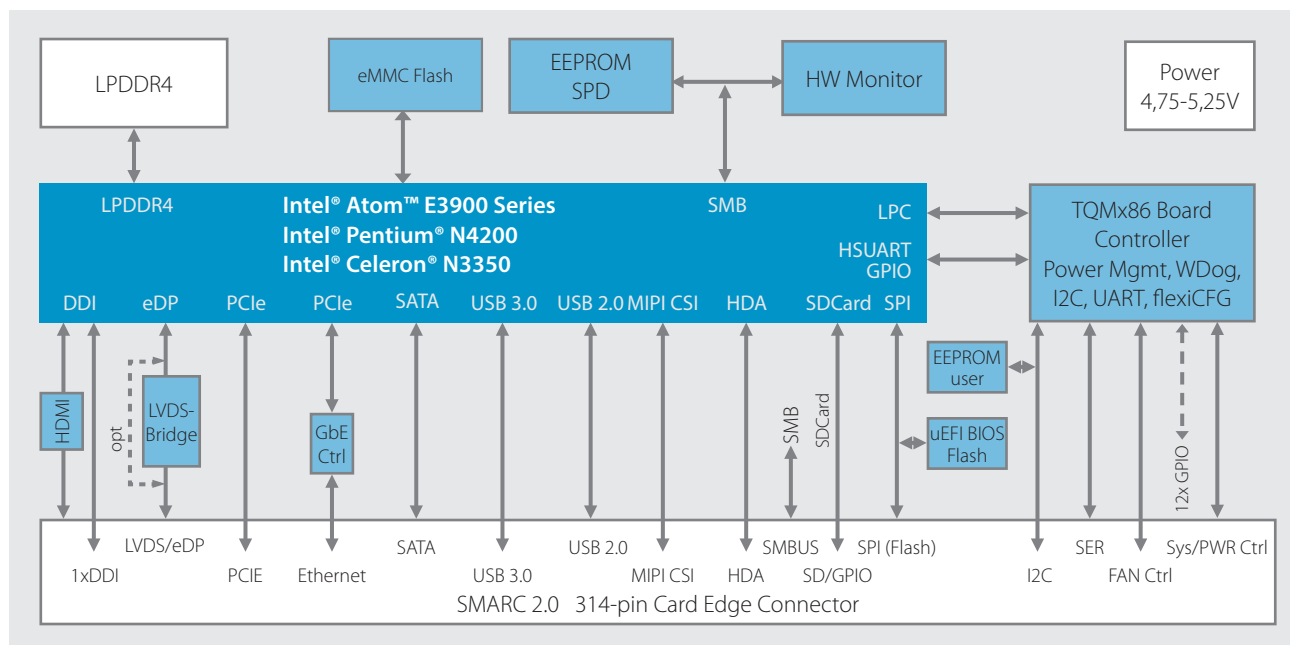
Based on



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
- Up to 8 GB LPDDR4
- High-speed interconnected with Gigabit Ethernet, 6x USB (3.0 / 2.0) and up to 4 PCIe lanes
- Triple display support (up to 4K UHD) and eDP/LVDS
- Up to 64 GB eMMC Flash, soldered
- Small size (82 x 50mm)
- Extended temperature support

Block diagram TQMxE39S



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

LPDDR4: 2/4/8 GB
eMMC: 8-64 GB (optional)
EEPROM: 32 kbit (24LC32) (optional)

Graphics

1x Digital Display Interface (DDI)
for DP 1.2a, HDMI 1.4b
1x eDP1.4/ Dual Channel LVDS
1x HDMI 1.4b

System interfaces

1x Gigabit Ethernet (Intel® i210)
(external IEEE1588 sync optional through TQ flexiCFG)
2x USB 3.0
4x USB 2.0
1x USB 2.0 OTG

Peripheral interfaces

1x SATA 3.0 (up to 6Gb/s), eSATA capable
Up to 4x PCIe 2.0 (up to 5Gb/s)
1x Intel® HD audio (HDA)
1x I²C (master/slave capable)
1x SMBus
1x SPI (for external uEFI BIOS flash)
4x Serial port (Rx/Tx, legacy compatible)
1x SD card interface
2x MIPI CSI

Others

TQm86 board controller with watchdog and flexiCFG
Hardware monitor

Power supply

Voltage: 4,75 V - 5,25 V
3 V Battery for RTC
Power: typ. 3 - 8 W / max. 14 W

Environment

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

Form factor / dimensions

SMARC 2.0, 82 mm x 50 mm

Ordering information

TQMxE395-xx

The current standard variants can be found on the TQ product website www.tq-group.com/en/TQMxE395

On request:

CPU, memory, eMMC, eDP/LVDS, special configurations

Accessory

TQMxE395-HSP

Heatspreader for TQMxE395 according to the SMARC 2.0 specification

Evaluation platform MB-SMARC-1

Mainboard for SMARC 2.0
Interfaces: 1x DP++, eDP/LVDS, 2x Gb ethernet, 1x USB 3.0,
1x USB 2.0, audio, fan, debug
170 mm x 170 mm
HDMI, USB-C, Micro SD-Card, 4 different M.2 sockets

TQMx86 software tools

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

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