

**Rugged interconnect™**  
TECHNOLOGIES  
*Technologies evolve, our commitment remains*

## TQMx60EB

**COM Express® Basic Module (Type 6)  
with 6<sup>th</sup> Generation Intel® Core™ i7/i5/i3 6000E and  
Intel® Xeon® E3-1500 v5 series**

The TQ minimodule TQMx60EB is designed for high end computing and graphics capabilities. With Dual-Channel DDR4-2133 support, high bandwidth PCIe, 4x SATA (6 Gb/s) and 4x USB 3.0 the TQMx60EB guarantees best in class system performance. The module can be equipped with 6th Generation Intel® Core™ i7/i5/i3 and Intel® Xeon® E3-15xx v5 processors (Codename Skylake-H). The integrated Intel® GT1/GT2/GT4e graphics controller supports up to three independent display outputs with up to 4K resolution @ 60 Hz and excellent 3D / rendering performance. Latest power and performance optimizing functions like Intel® Turbo Boost Technology 2.0 and Enhanced Intel® SpeedStep Technology enable perfect user experience with moderate power consumption.

This high end COM Express® Basic Type 6 module is best suited for high demand medical, gaming and industrial applications.

Based on

**COM Express**

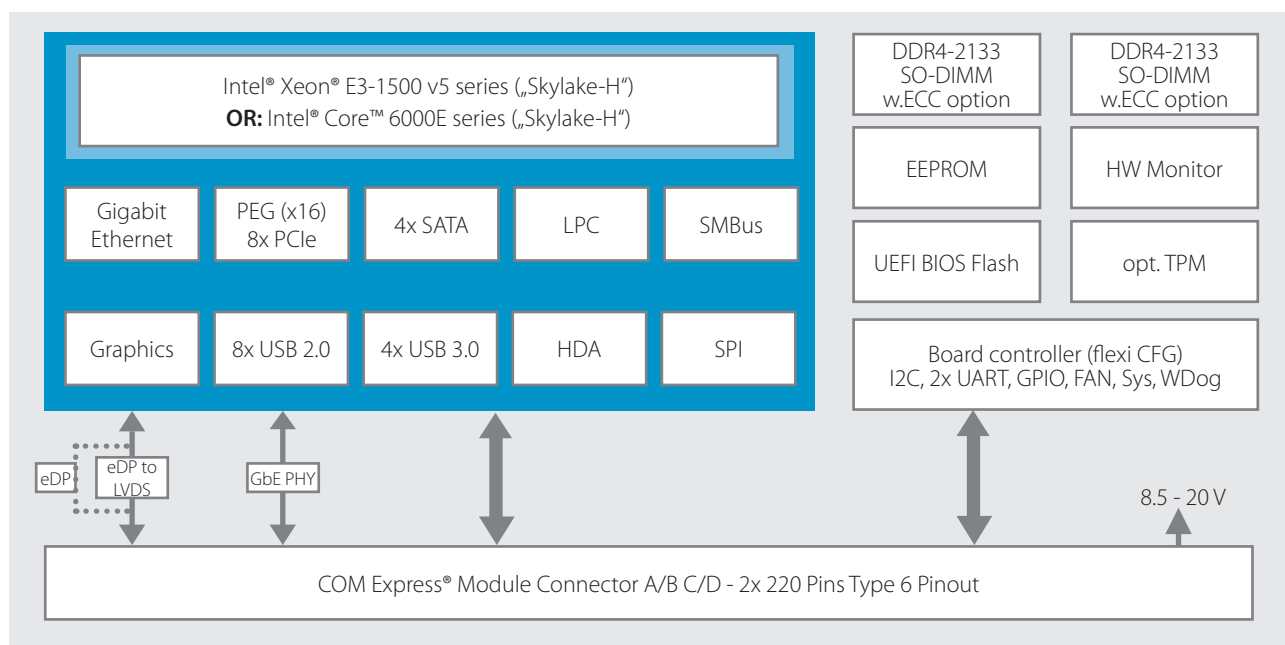


Technology  
Provider  
Platinum 2016

### Highlights:

- High end performance up to Quad-Core 3.7 GHz / 8 MB cache
- Impressive graphics performance (Intel® Iris™ Pro)
- Best in class power optimization
- Up to 32 GB Dual-Channel DDR4 (2 SO-DIMMs), ECC
- High bandwidth with up to 24 PCIe Gen. 3 lanes (incl. PCIe x16 PEG port)
- TQMx86 board controller with flexible customization options (flexiCFG)
- Mobile Intel® 100 series chipset (CM236)
- TPM 1.2 / 2.0
- "Green ECO-Off" (minimum of standby power)
- Watchdog und thermal management
- Highest reliability, 24/7 certified
- Quality Made-in-Germany

### Block diagram TQMx60EB



---

## Technical details

---

### CPU

#### Intel® Xeon® E3-1500 v5 series („Skylake-H“)

Xeon E3-1505M v5 (4x 2.8 / 3.7 GHz, 8 MB, GT2, 45 / 35 W)

Xeon E3-1505L v5 (4x 2.0 / 2.8 GHz, 8 MB, GT2, 25 W)

#### Intel® Core™ 6000E series („Skylake-H“)

Core i7-6820EQ (4x 2.8 / 3.5 GHz, 8 MB, GT2, 45 / 35W)

Core i7-6822EQ (4x 2.0 / 2.8 GHz, 8 MB, GT2, 25 W)

Core i5-6440EQ (4x 2.7 / 3.4 GHz, 6 MB, GT2, 45 W / 35W)

Core i5-6442EQ (4x 1.9 / 2.7 GHz, 6 MB, GT2, 25 W)

Core i3-6100E (2x 2.7 GHz, 3 MB, GT2, 35 W)

Core i3-6102E (2x 1.9 GHz, 3 MB, GT2, 25 W)

### Memory

DDR4-2133: up to 32 GB, w. ECC option, 2 SO-DIMMs

EEPROM: 32 kBit (24LC32)

### Graphics

Three independent display outputs:

3x Digital Display Interface / DP++ with up to 4K @ 60Hz  
for DP 1.2a / HDMI 1.4 with multi stream transport (MST)

LVDS Interface (18/24 bit, Single/Dual Channel)

(optional eDP 1.3 with 4 lanes instead of LVDS)

Intel® Quick Sync Video and Wireless Display support

### Interfaces

1x Gigabit Ethernet (Intel® i219-LM)

4x USB 3.0 (with USB 2.0 backward compatibility)

8x USB 2.0 (incl. USB 3.0 ports)

4x SATA Gen3 (up to 6Gb/s)

1x PEG Port with PCIe x16 Gen 3

8x PCIe Gen 3 (4x1 or 1x4)

1x LPC bus

1x Intel® HD audio (HDA)

1x I2C, (2nd I2C optional) (master/slave capable)

1x SMBus

1x SPI (for external uEFI BIOS flash)

2x Serial Port (Rx/Tx, legacy compatible)

(4 wire optional through TQ flexiCFG)

8x GPIO

### Additional components and controller

TPM (SLB9660 TPM 1.2, alternatively SLB9665 TPM 2.0)

TQmX86 board controller with watchdog and flexiCFG

Hardware monitor for thermal management

### Power supply

Voltage: 8.5 V - 20 V

5 V Standby (optional)

3 V battery

Power: typ. 25-30 W / max. 60 W

(Green ECO-Off: < 0.1 W)

### Environment

Temperature: 0°C ... +60°C

### Form factor / dimensions

COM Express® Basic, type 6, PICMG COM.0 R2.1

125 mm x 95 mm

---

## Ordering information

---

### TQMx60EB-xx

The current standard variants can be found on the TQ product website [www.tq-group.com/en/TQMx60EB](http://www.tq-group.com/en/TQMx60EB)

Options:

CPU, TPM, LVDS/eDP, special configurations

---

## Accessories

---

### TQMx60EB-HSP

Heatspreader for TQMx60EB according to the COM Express® specification

### Evaluation platform MB-COME6-2

Mainboard for COM Express® Compact/Basic, Type 6

Interfaces: 2x HDMI, DP++, LVDS, 2x Gb Ethernet, 4x USB 3.0,

8x USB 2.0, 2x COM, audio, mini PCIe, m.2, 2.5" SSD, riser extension with PCIe x16, 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,...

TQ-Systems GmbH

Mühlstr. 2 | Gut Delling | 82229 Seefeld | Germany

Phone: +49 8153 9308-0 | Fax: +49 8153 4223

[info@tq-group.com](mailto:info@tq-group.com) | [www.tq-group.com](http://www.tq-group.com)

>> Quicklink: [www.tq-group.com/en/TQMx60EB](http://www.tq-group.com/en/TQMx60EB)

