



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

## TQMx50UC

### COM Express™ Compact Module (Type 6) with 5th Generation Intel® Core™ i3/i5/i7 5000U

The TQ mini module TQMx50UC convinces with its outstanding CPU and graphics performance. The Intel® Core™ i3, Intel® Core™ i5 and Intel® Core™ i7 processors enable a new wave of innovation with features such as 3D scanning, gesture control, and voice commands.

The integrated Intel® graphics core HD5500/HD6000 guarantees best graphics experience and supports up to three independent display interfaces with up to 4K resolution. With Multi Stream Transport (MST) according to DisplayPort 1.2 standard it's possible, to drive multiple external HD displays from one single output.

The overall performance benefits from the ultra fast DDR3L-1600 onboard memory and up to 4 MB cache. For industrial applications the module delivers also high bandwidth interconnection with PCI Express, SATA Gen3, USB 3.0 and Gigabit Ethernet with IEEE1588 support.

Based on

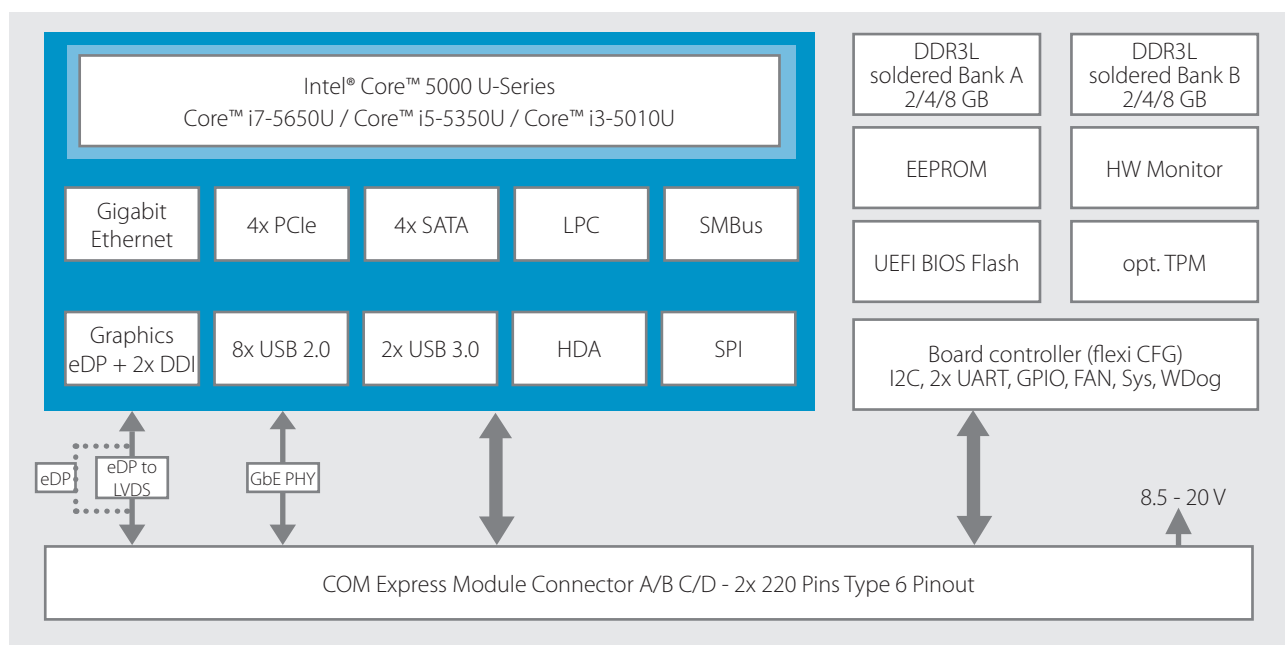
**COM Express**



#### Highlights:

- Intel® Core™ 5000U series („Broadwell-U“) with up to 3.2 GHz / 4 MB cache
- Up to 16 GB DDR3L on board memory
- Best Performance-per-Watt ratio (15W TDP)
- Reach featured uEFI BIOS with easy-config, multi-setup and touch support
- TQMx86 board controller with flexible customization options (flexiCFG)
- TPM 1.2 / 2.0
- iRTC (highly accurate industrial real time clock)
- “Green ECO-Off” (minimum of standby power)
- Watchdog und thermal management
- Highest reliability, 24/7 certified
- Rugged design / Conformal coating capability
- Quality Made-in-Germany

### Block diagram TQMx50UC



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## Technical details

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### CPU

Intel® Core™ 5000U series („Broadwell-U“)  
i7-5650U: 2x 2.2GHz / 3.2GHz Turbo, 4MB Cache, HD6000  
i5-5350U: 2x 1.8GHz / 2.9GHz Turbo, 3MB Cache, HD6000  
i3-5010U: 2x 2.1GHz, 3MB Cache, HD5500  
Hyper-Threading and Virtualization support  
15 W TDP max. (configurable down to 9.5/10 W)

### Memory

DDR3L-1600: 4 GB, 8 GB, 16 GB, soldered down  
EEPROM: 32 kBit (24LC32)

### Graphics

Three independent display outputs:  
2x Digital Display Interface / DP++ with up to 4K@60Hz  
LVDS Interface (18/24 bit, Single/Dual Channel), up to 4K  
(optional eDP 1.3 with 4 lanes instead of LVDS)  
Intel® Quick Sync Video and Wireless Display support

### Interfaces

1x Gigabit ethernet (Intel® i218-LM) with IEEE1588  
2x 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)  
4x PCIe 2.0 (up to 5Gb/s) (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)  
8x GPIO

### Additional components and controller

TPM (SLB9660 TPM 1.2, alternatively SLB9665 TPM 2.0)  
TQMx86 board controller with watchdog and flexiCFG  
Industrial real time clock (iRTC) with high accuracy  
Hardware monitor for thermal management

### Power supply

Voltage: 8.5 V - 20 V  
5 V Standby (optional)  
3 V battery / GoldCAP on carrier (optional)  
Power: typ. 10 W / max. 18 W (Green ECO-Off: < 0.1 W)

### Environment

Temperature: 0°C ... +60°C  
-40°C ... +85°C (on request)

### Form factor / dimensions

COM Express™ Compact, type 6, PICMG COM.0 R2.1  
95 mm x 95 mm

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## Ordering information

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### TQMx50UC-xx

The current standard variants can be found on the TQ product website [www.tq-group.com/en/TQMx50UC](http://www.tq-group.com/en/TQMx50UC)

#### Options:

CPU, memory, TPM, iRTC, LVDS/eDP, special configurations

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## Accessories

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### TQMx50UC-HSP

Heatspreader for TQMx50UC according to the COM Express™ specification

### Evaluation platform MB-COME6-1

Mainboard for COM Express™ Compact/Basic, Type 6  
Interfaces: 2x DP++, eDP/LVDS, 2x Gb ethernet, 2x USB 3.0, 3x USB 2.0, 3x COM, audio, mini PCIe, mSATA, 2,5" SSD, CFast, riser extension with 2x 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,...)

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/TQMx50UC](http://www.tq-group.com/en/TQMx50UC)

