



MB-COMHPCM-100100-1 User Manual

MB-COMHPCM-100100-1 UM 0001

12 May 2026

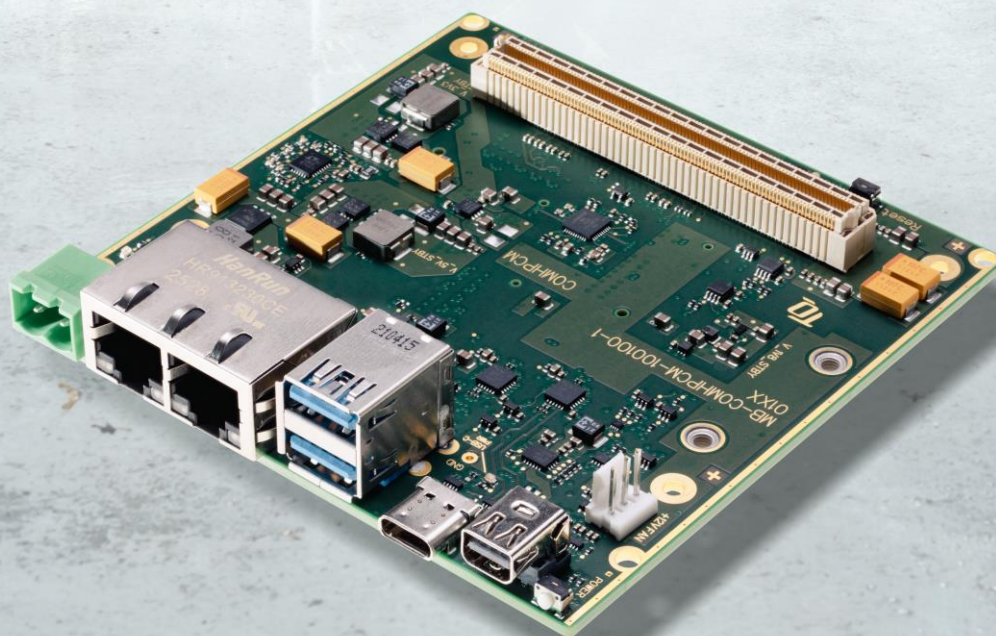




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1. ABOUT THIS MANUAL

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BIOS-licence expenses are paid by TQ-Systems GmbH and are included in the price.

Licence expenses for the operating system and applications are not taken into consideration and must be calculated / declared separately.

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TQ-Systems GmbH explicitly reserves the rights to change or add to the contents of this User Manual or parts of it without special notification.

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TQ DEVICES, PRODUCTS AND ASSOCIATED SOFTWARE ARE NOT DESIGNED, MANUFACTURED OR INTENDED FOR USE OR RESALE FOR THE OPERATION IN NUCLEAR FACILITIES, AIRCRAFT OR OTHER TRANSPORTATION NAVIGATION OR COMMUNICATION SYSTEMS, AIR TRAFFIC CONTROL SYSTEMS, LIFE SUPPORT MACHINES, WEAPONS SYSTEMS, OR ANY OTHER EQUIPMENT OR APPLICATION REQUIRING FAIL-SAFE PERFORMANCE OR IN WHICH THE FAILURE OF TQ PRODUCTS COULD LEAD TO DEATH, PERSONAL INJURY, OR SEVERE PHYSICAL OR ENVIRONMENTAL DAMAGE. (COLLECTIVELY, "HIGH RISK APPLICATIONS")

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1.5 Imprint

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1.6 Service and Support

Please visit our website [TQ-Group](https://www.tq-group.com) for latest product documentation, drivers, utilities and technical support.

You can register on our website [TQ-Group](https://www.tq-group.com) to have access to restricted information and automatic update services.

For direct technical support you can contact our FAE team by email: TQ-Support.

Our FAE team can also support you with additional information like 3D-STEP files and confidential information, which is not provided on our public website.





For service or RMA, please contact our service team by email (TQ-Service) or your sales team at TQ.

1.7 Tips on Safety

Improper or incorrect handling of the product can substantially reduce its life span.


1.8 Symbols and Typographic Conventions

Table 1: Terms and Conventions


Symbol	Meaning
	This symbol represents the handling of electrostatic-sensitive modules and / or components. These components are often damaged / destroyed by the transmission of a voltage higher than about 50 V. A human body usually only experiences electrostatic discharges above approximately 3,000 V.
	This symbol indicates the possible use of voltages higher than 24 V. Please note the relevant statutory regulations in this regard. Non-compliance with these regulations can lead to serious damage to your health and also cause damage / destruction of the component.
	This symbol indicates a possible source of danger. Acting against the procedure described can lead to possible damage to your health and / or cause damage / destruction of the material used.
	This symbol represents important details or aspects for working with TQ-products.
Command	A font with fixed width is used to denote commands, contents, file names, or menu items.

1.9 Handling and ESD Tips

General handling of your TQ-products

	<p>The TQ-product may only be used and serviced by certified personnel who have taken note of the information, the safety regulations in this document and all related rules and regulations.</p> <p>A general rule is: do not touch the TQ-product during operation. This is especially important when switching on, changing jumper settings or connecting other devices without ensuring beforehand that the power supply of the system has been switched off.</p> <p>Violation of this guideline may result in damage / destruction of the MB-COMHPCM-100100-1 and be dangerous to your health.</p> <p>Improper handling of your TQ-product would render the guarantee invalid.</p>
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Proper ESD handling

	<p>The electronic components of your TQ-product are sensitive to electrostatic discharge (ESD). Always wear antistatic clothing, use ESD-safe tools, packing materials etc., and operate your TQ-product in an ESD-safe environment. Especially when you switch modules on, change jumper settings, or connect other devices.</p>
---	---

1.10 Naming of Signals

A hash mark (#) at the end of the signal name indicates a low-active signal.

Example: RESET#

If a signal can switch between two functions and if this is noted in the name of the signal, the low-active function is marked with a hash mark and shown at the end.

Example: C / D#

If a signal has multiple functions, the individual functions are separated by slashes when they are important for the wiring. The identification of the individual functions follows the above conventions.

Example: WE2# / OE#

1.11 Further Applicable Documents / Presumed Knowledge

- **Specifications and manual of the product used:**
These documents describe the service, functionality and special characteristics of the product used.
- **Specifications of the components used:**
The manufacturer's specifications of the components used, for example CompactFlash cards, are to be taken note of. They contain, if applicable, additional information that must be taken note of for safe and reliable operation. These documents are stored at TQ-Systems GmbH.
- **Chip errata:**
It is the user's responsibility to make sure all errata published by the manufacturer of each component are taken note of. The manufacturer's advice should be followed.
- **Software behaviour:**
No warranty can be given, nor responsibility taken for any unexpected software behaviour due to deficient components.
- **General expertise:**
Expertise in electrical engineering / computer engineering is required for the installation and the use of the device.

Implementation information for the carrier board design is provided in the COM-HPC® Carrier Design Guide **Fehler! Verweisquelle konnte nicht gefunden werden.**, maintained by the PICMG®. This Carrier Design Guide includes a very good guideline to design a COM-HPC® Mini carrier board.

It includes detailed information with schematics and detailed layout guidelines.

Please refer to the official PICMG® documentation for additional information (2), **Fehler! Verweisquelle konnte nicht gefunden werden.**



COM-HPC® Mini I/O voltages: The COM-HPC® Mini redefines a number of I/O voltage rails from 3.3 V to 1.8 V, reflecting current chipset and SOC trends. Low-speed, single-ended signals, that are directly attached to the Chipset and SOC are redefined on the COM-HPC® Mini to operate at 1.8 V.

2. INTRODUCTION

The COM-HPC mainboard MB-COMHPCM-100100-1 is a carrier board for COM-HPC modules with a pinout based on the COM-HPC 1.2 specification.

It can be used as a demonstrator for Mini-PCs, IoT or Image Processing.

In combination with a standard COM-HPC module it forms a very compact hardware kit that can be used for a freely scalable embedded PC platform thanks to its modular design. Because of this – with uniform interfaces and dimensions – the PC system can be easily adapted to suit the requirements of the application. The many extension options and storage media, which can be added, offer a high level of flexibility and allow functionalities and performance to be extended easily, quickly and inexpensively.

2.1 Functional Overview

The following key functions are implemented on the MB-COMHPCM-100100-1:

Supported Modules:

- TQ COM-HPC® Mini modules

External Interfaces:

- 2 × 10 BASE-T / 100 BASE-TX / 1000 BASE-T / 2500 BASE-T Ethernet interface
- 2 × USB 3.2 Gen 1 Type A connector
- 1 × USB 3.2 Gen 2 Type C connector
- 1 × Mini DisplayPort
- 1 × Serial Port with RS232 transceiver
- Power Button
- Reset Button
- Phoenix Power Connector
- 12V Fan Connector

Internal Interfaces:

- M.2 socket E-Key 2230 with USB 2.0 and PCIe x1
- 2 × M.2 socket M-Key 2242 with PCIe x4
- RTC Battery

Power supply:

- Voltage: 12 V DC ±5 %

Environment:

- Extended temperature: –20 °C to +85 °C

Form factor / dimensions:

- 100 mm × 100 mm

2.2 Specification Compliance

The MB-COMHPCM-100100-1 supports COM-HPC modules, which are compliant to PICMG COM-HPC Hardware Specification (V1.2).

3. ELECTRONICS

3.1 Block Diagram

The following illustration shows the block diagram of the MB-COMHPCM-100100-1:

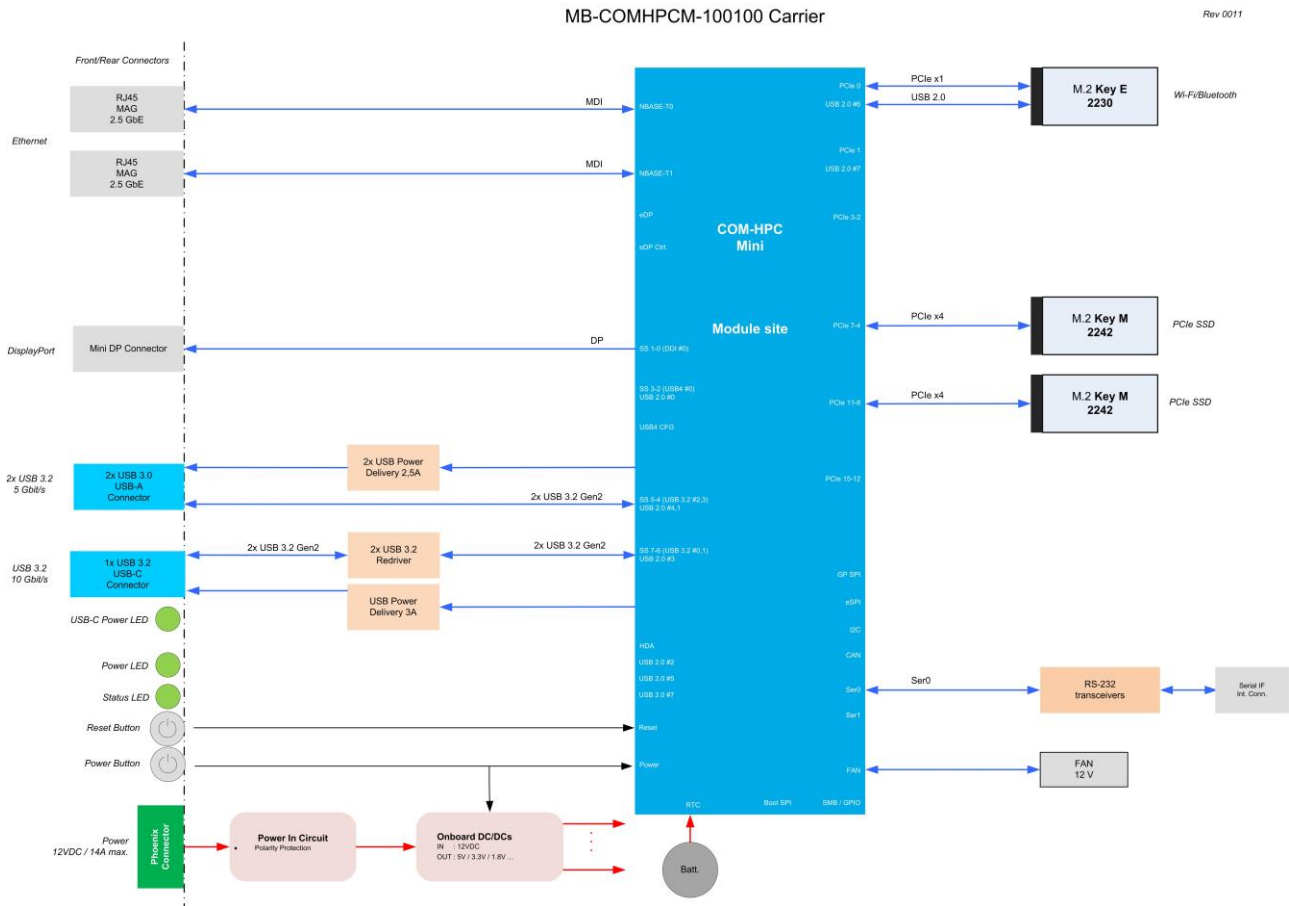


Illustration 1: Block Diagram MB-COMHPCM-100100-1

3.2 Power Supply

3.2.1 Supply Voltage Characteristics

The MB-COMHPCM-100100-1 requires an input voltage of 12 V DC $\pm 5\%$.

The input voltages shall rise from 10 % of nominal to 90 % of nominal within 0.1 msec to 20 msec. (0.1 msec \leq Rise Time \leq 20 msec).

There must be a smooth and continuous increase of each DC output voltage from 10 % to 90 % of its final set point within the regulation range.

3.2.2 Power Consumption Specification

The power consumption of the system significantly depends on the connected devices (COM-HPC module, Mass storage devices, USB devices etc.).

The power consumption of the MB-COMHPCM-100100-1 itself is approximately 69 W (COM-HPC module supplied externally; Windows 10 active; Keyboard, mouse, mass storage device connected).

With the COM-HPC module supplied from the MB-COMHPCM-100100-1 and all possible Devices connected the power consumption can rise up to 176 W.

Note: Power requirement

The power supply for the MB-COMHPCM-100100-1 must be configured with enough reserve. It should be calculated with the maximum power of all connected components.

The MB-COMHPCM-100100-1 input current is not fused. The user has to ensure that the input current does not exceed the **maximum current of 15 A (180 W)**.

3.3 Environmental Specification

- Operating temperature, extended: -20 °C to +85 °C
- Storage temperature: -20 °C to +85 °C
- Relative humidity (operating / storage): 10 % to 90 % (not condensing)

3.4 Connectors and Interfaces

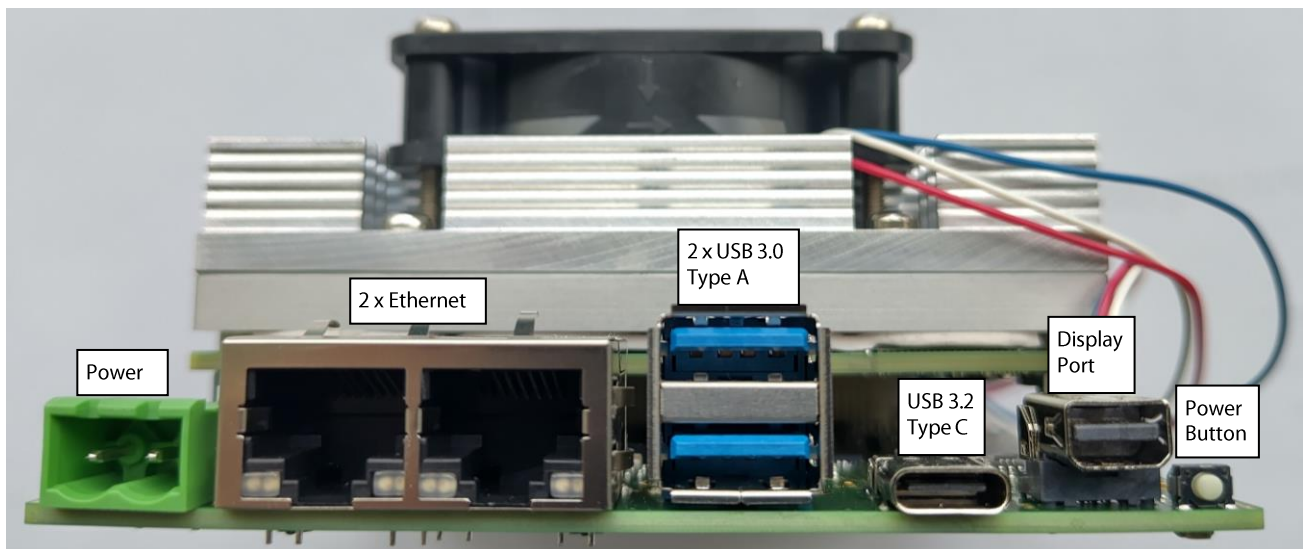


Illustration 2: MB-COMHPCM-100100-1, Interface Connectors

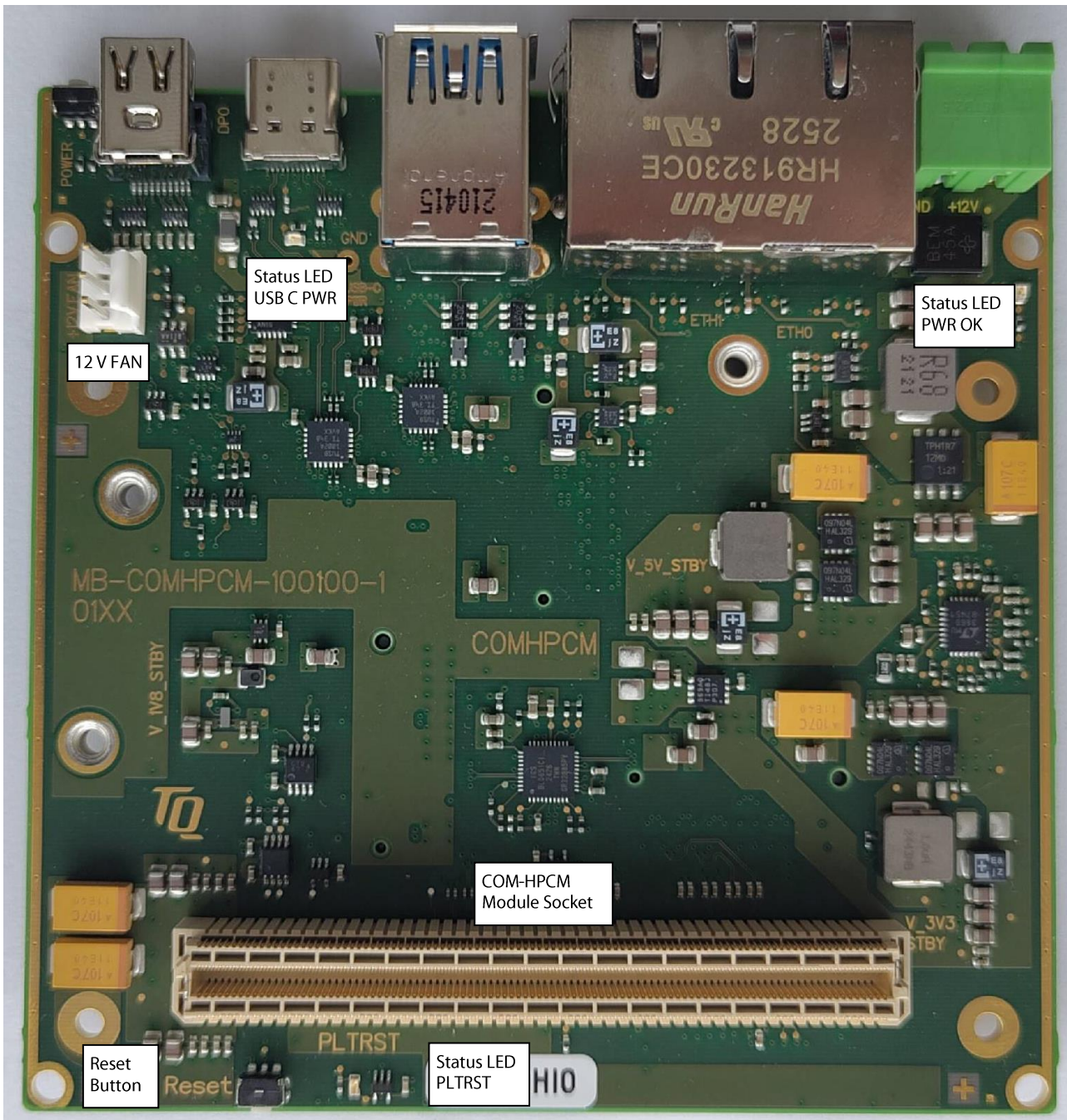


Illustration 3: MB-COMHPCM-100100-1, Top

3.4.1 COM-HPC Module Connector

The MB-COMHPCM-100100-1 provides one Interface for COM-HPC modules with Mini format 95 x 70 mm. It is recommended to screw the module to the carrier with suitable spacer bolts.

3.4.2 Power Supply

The MB-COMHPCM-100100-1 requires a single 12 V DC power supply. The voltage should not vary more than ±5 %.

Power-In connector X2:

- Connector type: Phoenix MSTBA 2,5/ 2-G-5,08 PHX
- Mating connector: e.g. Phoenix MSTB 2,5/ 2-ST-5,08

Table 2: Pinout Power-In connector

Pin	Signal	Remark
1	12 V	Max. 25 A, current limit must be supported by power supply
2	GND	



Illustration 5: Power In connector

3.4.3 Power and Reset Button

The MB-COMHPCM-100100-1 provides one Power and one Reset Button. If the system is supplied with power, it starts automatically. When the system is shut down, it can be restarted with the power button. The reset button resets the entire system and restarts the system. The reset should not be activated if the system has started an operating system on one of the two data carrier, as otherwise data loss or even damage to the data carrier may occur.

3.4.4 Mini DisplayPort

The MB-COMHPCM-100100-1 provides one DisplayPort interface with Mini DisplayPort Socket X6. The support of the interface and adapters from DP to HDMI, DVI or VGA depends on the combination of the COM-HPC module and the adapter used. The combination of some modules with some adapters might not work.



Illustration 6: Mini Displayport connector

The Mini DisplayPort interface supports resolutions up to 3840 × 2400.

3.4.5 USB Interfaces

The MB-COMHPCM-100100-1 provides several USB Host interfaces.

- X5: C-Type connector (USB3.2, 10GB/s) for direct usage of USB host port with Power Delivery Function
- X4: A-Type connector (USB3.0, 5GB/s) for direct usage of USB host port with Power Delivery Function

Table 3: COM-HPC® Mini SuperSpeed USB 3.2 and USB 2.0 port mapping

COM-HPC® Mini SuperSpeed port	COM-HPC® Mini USB 2.0 port	MB-COMHPCM-100100-1 connector
SuperSpeed port 2	USB 2.0 port 4	USB Type A connector X4, top
SuperSpeed port 3	USB 2.0 port 1	USB Type A connector X4, bottom
SuperSpeed port 0 and 1	USB 2.0 port 3	USB Type C connector X5

3.4.6 2.5 Gigabit Ethernet

The MB-COMHPCM-100100-1 provides two common 10/100/1000/2500 Mbps speed Gigabit Ethernet ports. For both ports the Ethernet Signals of the COM-HPC module are used. The Ethernet signals are routed to X3.

Table 4: Function of Ethernet LEDs

LED	Status
Left LED (Green / Yellow)	Green / 2500 Mbps Yellow / 1000 Mbps Off / 100 or 10 Mbps or No Link
Right LED (Green)	Solid Green / Link Up Blinking Green / Traffic Off / Link Down

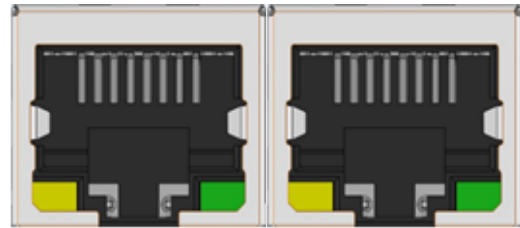


Illustration 7: Ethernet Connectors

3.4.7 Serial Interfaces (RS-232)

The MB-COMHPCM-100100-1 provides one serial port:

X13: SER1 RX/ TX at feature connector

- Connector type: Molex 53398-1071
- Mating connector: Molex 51021-1000 crimp housing

Table 5: RS-232 Molex connector

Pin	RS-232 Signal	MB-COMHPCM-100100-1
1		NC
2		NC
3	RXD	SERO_RX
4	RTS	SERO_RTS#
5	TXD	SERO_TX
6	CTS	SERO_CTS#
7		NC
8		NC
9		GND
10		NC



Illustration 8: RS-232 Molex connector

3.4.8 Fan Connector

The MB-COMHPCM-100100-1 provides a connector for 12 V fans with a 3-pin connector.

12 V fan connector X8

- Connector type: Tyco 640456-3

Table 6: 12 V Fan Connector

Pin	Signal	Remark
1	GND	-
2	V_12V_FAN	12V fan power PWM signal
3	FAN_SENSE	Fan sense signal

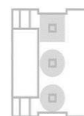


Illustration 9: 12 V Fan Connector

3.4.9 M.2 E-Key and M-Key sockets

The MB-COMHPCM-100100-1 provides one M.2 E-Key and two M.2 M-Key sockets.

3.4.9.1 M.2 Socket with E-Key

The MB-COMHPCM-100100-1 provides a socket to support an M.2 E-Key add-in card with 22 mm width and 30 mm length. USB and a PCIe x1 interface signals are routed to this socket.

M.2 2230 single- and double-sided add-in cards with E or A+E-Keying can be inserted.

The maximum transfer rate of this interface mainly depends on the COM-HPC module used and the connected device.

It is recommended to screw the add in card to the carrier with suitable spacer bolts.

Table 7: COM-HPC® Mini PCI Express port mapping

COM-HPC® Mini PCI Express port	MB-COMHPCM-100100-1 connector
Group 0 low port 0	M.2, X10

3.4.9.2 2 x M.2 Socket with M-Key 2

The MB-COMHPCM-100100-1 provides two sockets to support PCIe based M.2 add in cards with 22 mm width and 42 mm length. A PCIe x4 interface is routed to each of these sockets.

M.2 2242 single- and double-sided add-in cards with M or M+B-Keying can be inserted.

The maximum transfer rate of this interface depends mainly on the COM-HPC module used and the connected device.

It is recommended to screw the add in card to the carrier with suitable spacer bolts.

Table 8: COM-HPC® Mini PCI Express port mapping

COM-HPC® Mini PCI Express port	MB-COMHPCM-100100-1 connector
Group 0 low port 4 – 7	M.2, X11
Group 0 high port 8 – 11	M.2, X9

3.4.10 RTC Battery Socket

The MB-COMHPCM-100100-1 provides an Socket for an RTC Battery. Only coin cells of size CR2032 can be used

3.4.11 Debug / Status LEDs

The MB-COMHPCM-100100-1 provides several LEDs for debug purposes.

Table 9: Debug / Status LEDs

Function	PCB text	Remark
Power Status Green	Green LED S0	Green if module is in S0 mode (Full Power)
Power Status Red	Both LEDs S3	Both if module is in power-saving S3 mode (Suspend to RAM)
Power Status LEDs	LEDs Off S5	LEDs off if module is in S5 mode (Soft Off)
Voltage Supervisory Supply	PWR OK	Green if PWR_OK signal is valid. Supply Voltage OK.
USB-C Power	USB-C PWR	USB-C Power Delivery active
Platform Reset	PLTRST#	Reset Signal to E-Key and M-Key M.2 Modules



4. MECHANICS

4.1 Dimensions

The dimensions are 100 mm × 100 mm.

Please contact [TQ-Support](#) for more details about 3D Step models.

4.2 Protection against External Effects

The MB-COMHPCM-100100-1 is not protected against dust, external impact and contact (IP00). Adequate protection has to be guaranteed by the surrounding system.

5. SOFTWARE

5.1 Operating Systems

5.2 Supported Operating Systems

The MB-COMHPCM-100100-1 supports various Operating Systems:

- Microsoft® Windows® 10 or later

Other Operating Systems are supported on request.

Please contact [TQ-Support](#) for further information about supported Operating Systems.

5.3 Driver Download

The MB-COMHPCM-100100-1 is well supported by the Standard Operating Systems, which already include most of the drivers required. It is recommended to use the latest drivers for best performance and the full feature set of the module.

Please contact [TQ-Support](#) for further driver download assistance.



6. SAFETY REQUIREMENTS AND PROTECTIVE REGULATIONS

6.1 EMC

The MB-COMHPCM-100100-1 was developed according to the requirements of electromagnetic compatibility (EMC). Depending on the target system, anti-interference measures may still be necessary to guarantee that the limits for the overall system including housing are met.

6.2 ESD

In order to avoid interspersions on the signal path from the input to the protection circuit in the system, the protection against electrostatic discharge should be arranged directly at the inputs of a system. Most external interfaces are protected using ESD protection diodes. Measurements for ESD protection have to be done with the electronic parts mounted in a housing. Since TQ-Systems GmbH does not offer a housing for the MB-COMHPCM-100100-1, no special preventive measures are taken.

6.3 Shock & Vibration

The MB-COMHPCM-100100-1 is designed to be insensitive to shock and vibration and impact.

6.4 Cyber Security

A Threat Analysis and Risk Assessment (TARA) must always be performed by the customer for their individual end application, as the MB-COMHPCM-100100-1 is only a sub-component of an overall system.

6.5 Operational Safety and Personal Security

Due to the occurring voltages (≤ 20 V DC), tests with respect to the operational and personal safety have not been carried out.

6.6 Export Control and Sanctions Compliance

The customer is responsible for ensuring that the product purchased from TQ is not subject to any national or international export/import restrictions. If any part of the purchased product or the product itself is subject to said restrictions, the customer must procure the required export/import licenses at its own expense. In the case of breaches of export or import limitations, the customer indemnifies TQ against all liability and accountability in the external relationship, irrespective of the legal grounds. If there is a transgression or violation, the customer will also be held accountable for any losses, damages or fines sustained by TQ. TQ is not liable for any delivery delays due to national or international export restrictions or for the inability to make a delivery as a result of those restrictions. Any compensation or damages will not be provided by TQ in such instances.

The classification according to the European Foreign Trade Regulations (export list number of Reg. No. 2021/821 for dual-use-goods) as well as the classification according to the U.S. Export Administration Regulations in case of US products (ECCN according to the U.S. Commerce Control List) are stated on TQ's invoices or can be requested at any time. Also listed is the Commodity code (HS) in accordance with the current commodity classification for foreign trade statistics as well as the country of origin of the goods requested/ordered.

6.7 Warranty

TQ-Systems GmbH warrants that the product, when used in accordance with the contract, fulfills the respective contractually agreed specifications and functionalities and corresponds to the recognized state of the art. The warranty is limited to material, manufacturing and processing defects. The manufacturer's liability is void in the following cases:

- Original parts have been replaced by non-original parts.
- Improper installation, commissioning or repairs.
- Improper installation, commissioning or repair due to lack of special equipment.
- Incorrect operation
- Improper handling
- Use of force
- Normal wear and tear

7. ENVIRONMENT PROTECTION

7.1 RoHS

The MB-COMHPCM-100100-1 is manufactured RoHS compliant.

- All used components and assemblies are RoHS compliant
- RoHS compliant soldering processes are used

7.2 WEEE®

The final distributor is responsible for compliance with the WEEE® regulation.

Within the scope of the technical possibilities, the MB-COMHPCM-100100-1 was designed to be recyclable and easy to repair.

7.3 REACH®

The EU-chemical regulation 1907/2006 (REACH® regulation) stands for registration, evaluation, certification and restriction of substances SVHC (Substances of very high concern, e.g., carcinogen, mutagen and/or persistent, bio accumulative and toxic). Within the scope of this juridical liability, TQ-Systems GmbH meets the information duty within the supply chain with regard to the SVHC substances, insofar as suppliers inform TQ-Systems GmbH accordingly.

7.4 Statement on California Proposition 65

California Proposition 65, formerly known as the Safe Drinking Water and Toxic Enforcement Act of 1986, was enacted as a ballot initiative in November 1986. The proposition helps protect the state's drinking water sources from contamination by approximately 1,000 chemicals known to cause cancer, birth defects, or other reproductive harm ("Proposition 65 Substances") and requires businesses to inform Californians about exposure to Proposition 65 Substances.

The TQ device or product is not designed or manufactured or distributed as consumer product or for any contact with end-consumers. Consumer products are defined as products intended for a consumer's personal use, consumption, or enjoyment. Therefore, our products or devices are not subject to this regulation and no warning label is required on the assembly.

Individual components of the assembly may contain substances that may require a warning under California Proposition 65. However, it should be noted that the Intended Use of our products will not result in the release of these substances or direct human contact with these substances. Therefore you must take care through your product design that consumers cannot touch the product at all and specify that issue in your own product related documentation.

TQ reserves the right to update and modify this notice as it deems necessary or appropriate.

7.5 EuP

The Eco Design Directive, also Energy using Products (EuP), is applicable to products for the end user with an annual quantity >200,000. The MB-COMHPCM-100100-1 must therefore always be seen in conjunction with the complete device. The available standby and sleep modes of the components on the MB-COMHPCM-100100-1 enable compliance with EuP requirements for the MB-COMHPCM-100100-1.

7.6 Battery

No batteries are assembled on the MB-COMHPCM-100100-1. The RTC battery socket X12 is designed for CR2032 coin cells.

7.7 Packaging

By environmentally friendly processes, production equipment and products, we contribute to the protection of our environment. To be able to reuse the MB-COMHPCM-100100-1, it is produced in such a way (a modular construction) that it can be easily repaired and disassembled. The energy consumption of this subassembly is minimised by suitable measures.

The MB-COMHPCM-100100-1 is delivered in reusable packaging.

7.8 Other Entries

By environmentally friendly processes, production equipment and products, we contribute to the protection of our environment.

The energy consumption of this subassembly is minimised by suitable measures.

Printed PC-boards are delivered in reusable packaging.

Modules and devices are delivered in an outer packaging of paper, cardboard or other recyclable material.

Due to the fact that at the moment there is still no technical equivalent alternative for printed circuit boards with bromine-containing flame protection (FR-4 material), such printed circuit boards are still used.

No use of PCB containing capacitors and transformers (polychlorinated biphenyls).



These points are an essential part of the following laws:

- The law to encourage the circular flow economy and assurance of the environmentally acceptable removal of waste as at 27.9.94
(source of information: BGBl I 1994, 2705)
- Regulation with respect to the utilization and proof of removal as at 1.9.96
(source of information: BGBl I 1996, 1382, (1997, 2860))
- Regulation with respect to the avoidance and utilization of packaging waste as at 21.8.98
(source of information: BGBl I 1998, 2379)
- Regulation with respect to the European Waste Directory as at 1.12.01
(source of information: BGBl I 2001, 3379)

This information is to be seen as notes. Tests or certifications were not carried out in this respect.

8. APPENDIX

8.1 Acronyms and Definitions

The following acronyms and abbreviations are used in this document.

Table 10: Acronyms

Acronym	Meaning
ATA	Advanced Technology Attachment
BIOS	Basic Input/Output System
CAN	Controller Area Network
CSI	Camera Serial Interface (MIPI)
DIP	Dual In-line Package
DP	Display Port
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
eDP	embedded Display Port
EEPROM	Electrically Erasable Programmable Read-Only Memory
EMC	Electromagnetic Compatibility
ESD	Electrostatic Discharge
EuP	Energy using Products
FAE	Field Application Engineer
flexiCFG	Flexible Configuration
FR-4	Flame Retardant 4
FTDI	Future Technology Devices International
GPIO	General-Purpose Input/Output
HD	High Definition (Audio)
HDA	High-Definition Audio (Intel)
HDMI	High-Definition Multimedia Interface
HPD	Hot Plug Detect
I/O	Input/Output
I2C	Inter-Integrated Circuit
I2S	Integrated Interchip Sound
IEEE®	Institute of Electrical and Electronics Engineers
IP	Ingress Protection
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LTE	Long Term Evolution
LVDS	Low Voltage Differential Signal
MIPI	Mobile Industry Processor Interface
mPCIe	Mini Peripheral Component Interconnect Express
MTBF	Mean (operating) Time Between Failures
NC	Not Connected
OTG	On-The-Go

8.1 Acronyms and Definitions (continued)

Table 10: Acronyms (continued)

Acronym	Meaning
PC	Personal Computer
PCB	Printed Circuit Board
PCI	Peripheral Component Interconnect
PCIe	Peripheral Component Interconnect express
PCMCIA	People Can't Memorize Computer Industry Acronyms
PICMG®	PCI Industrial Computer Manufacturers Group
PWM	Pulse-Width Modulation
PWR	Power
RAM	Random Access Memory
REACH®	Registration, Evaluation, Authorisation (and restriction of) Chemicals
RJ45	Registered Jack 45
RMA	Return Merchandise Authorization
RoHS	Restriction of (the use of certain) Hazardous Substances
RS-232	Recommended Standard (serial interface)
SATA	Serial ATA
SD	Secure Digital
PICMG	Standardization Group for Embedded Technologies
SIM	Subscriber Identity Module
SM	System Management
COM-HPC	Smart Mobile ARChitecture
SMB	System Management Bus
SPI	Serial Peripheral Interface
SSD	Solid-State Drive
SVHC	Substances of Very High Concern
UEFI	Unified Extensible Firmware Interface
UMTS	Universal Mobile Telecommunications System
UN	United Nations
USB	Universal Serial Bus
VGA	Video Graphics Array (640 × 480)
WEEE®	Waste Electrical and Electronic Equipment
WES	(Microsoft®) Windows® Embedded Standard
WLAN	Wireless Local Area Network
WWAN	Wireless Wide Area Network

8.2 References

Table 11: Further Applicable Documents and Links

No.	Name	Rev. / Date	Company
(1)	Intel® Core™ Ultra processor Product Brief	–	Intel
(2)	PICMG® COM-HPC® Module Base Specification	Rev. 1.2	PICMG
(3)	PICMG® COM-HPC® Carrier Design Guide	Rev. 2.2	PICMG PDF
(4)	PICMG® COM-HPC® Embedded Application Programming Interface	Rev. 1.0	PICMG PDF

