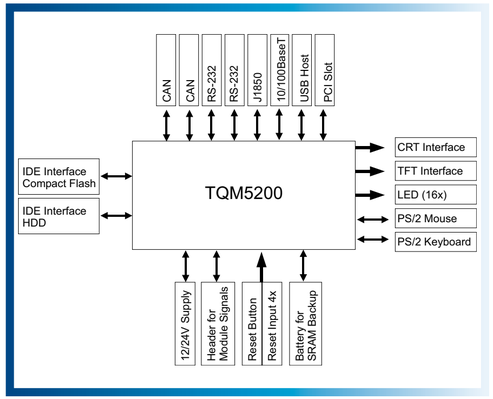
Block diagram
STK52xx



Plug&Play starter kit
STK52xx

All the relevant functions, interfaces and signals of the TQM5200 are available in the STK52xx starter kit. The TQM5200 can be connected via the four board-to-board connectors (a total of 320 pins) on the starter kit. In addition to the plug-in power supply, the serial download cable, the tool CD and the associated manuals, a module puller is included in the STK5200 delivery package.

Almost a small IPC

Both CRT and TFT interfaces are externally available. A keyboard and mouse controller is used as an input unit that communicates via the PSC 6 serial interface with the TQM5200 module. Two separate PS/2 sockets are provided for contact.
A 10/100 Mbit Ethernet interface provides the connection to the network. In the starter kit, the internal PCI interface of the MPC5200 is accessible through a standard PCI slot.
TQ has integrated two CAN interfaces for industrial applications. The signals are isolated by optocouplers that simultaneously take over the level shifter function. The USB host interface directly supplies +5V from the USB bus supply voltage.
An IDE or ATA interface is provided by the STK52xx. As needed, the user can connect compact flash cards or hard disks to this interface.

Operating system and tool partner for TQ modules

RTOS / Linux

RTOS / OSE

RTOS / jbed

C Compiler & RTOS / Euros

Debugging Tools

RTOS

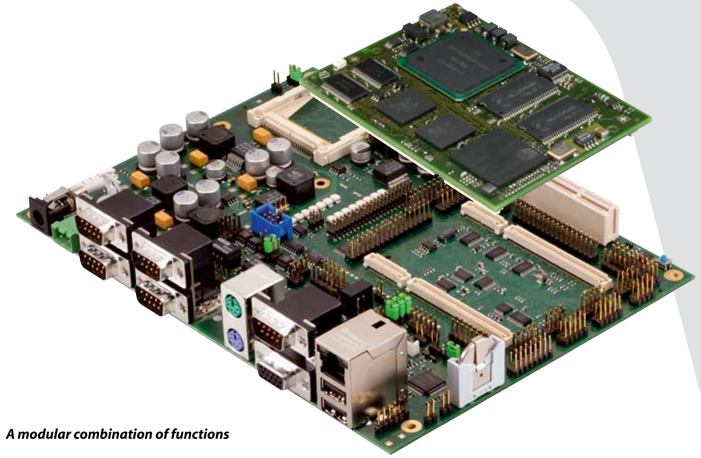
RTOS / QNX

RTOS / OS-9

C Compiler

RTOS / VXWorks

Status: 06/06



A modular combination of functions

The components delivered in the starter kit package comprise a modular system for implementing product ideas. As its heart, the TQM5200 is used for visualizing data, communication and other control tasks. Developers can easily extract the desired information via the interface module from the STK5200 circuit diagrams. A new project can be quickly realized. There is no time-consuming research of circuit examples and application notes. The modular design saves time and cost.

Accessories

- STK52xx with TQM5200
- Power supply
- Serial cable for download
- Monitorsoftware on board
- Tool for deinstallation the Module: MOZI5200

Performance features of the STK52xx

- 2x CAN
- 1x J1850
- 1x Ethernet: 10/100Mbit
- 2x PS/2
- CRT and LCD interface
- 1x PCI Slot
- JTAG / BDI
- 2x RS-232
- 1x USB (1x Host)
- 1x ATA/IDE
- 16 LEDs
- Header for all signals from Module
- Puffer battery
- Reset button
- Power Supply 12V / 24V

TQ components
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Data sheet TQM5200 Rev.201 Document-No: TQM5200.DBE.201

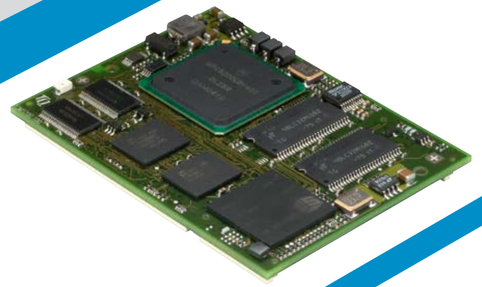
EMBEDDED–MODULES

TQM5200

32-bit Microprocessor MPC5200 Family

freescale™ Enabled

PowerPC



Control and *visualize applications*

With the embedded TQM5200 module, TQ-Components presents its newest mini-module based on the MPC5200 PowerPC processor by Freescale. With 760 MIPS at a clock frequency of 400 MHz, the MPC5200 achieves a performance class that can handle a wide range of applications. It comes with up to six serial interfaces (PSC1 to PSC6). These can be used for numerous different synchronous and asynchronous protocols. The J1850 controller originates from the automotive sector as does the MSCAN module (MSCAN: Motorola scalable area network) with two CAN controllers. Additional serial busses are available through the two I²C controllers and the SPI controller. Both controllers support both master and slave mode. A driven serial interface handles communication tasks. On the TQM5200, the PSC1 of the processor has corresponding V24 voltage levels at the module connectors. The MPC5200 has two USB 1.1 ports, which are accessible at the board-to-board connectors. In addition, a PCI bus is freely available to the user.
When designing the TQM5200, particular emphasis was placed on the compact outer dimensions of 80 x 60 mm² (3.15 x 2.36 square inch) or 60 x 56 mm² (2.36 x 2.20 square inch). The module is also equipped with the particularly robust 0.8 mm mezzanine connection system optimized for industrial use. The module is rated for the normal temperature range of 0°C to +70°C and an extended temperature range of -40°C to +85°C. The functionality of the MPC5200 is expanded by the multimedia companion chip SM501 by Silicon Motion. The integrated graphics controller attains resolutions of up to 1280 x 1024. The user can control nearly any conventional display via the LCD and CRT outputs. With an 8 Mbyte internal memory, the SM501 attains high-level graphics performance and can also produce complex graphic user interfaces.

Large memory

A major feature of the MPC5200 is its multifunctional external bus that offers an ATA/IDE interface in addition to PCI V2.2 compatibility. With an on-board flash memory of up to 32 MByte, the user can store entire operating systems. If expanded memory is needed, a compact flash card or hard disk can be installed via the ATA/IDE controller. Depending on the model features, 16 to 256 MByte SDRAM is available as main memory.

Summary

The TQM5200 offers the user numerous interfaces in addition to substantial computing power. Additional memory is easily added. The high graphic performance allows the user to design complex visualization interfaces. Numerous industrial features such as long-term availability, robustness and size enable a wide range of applications in an industrial environment.

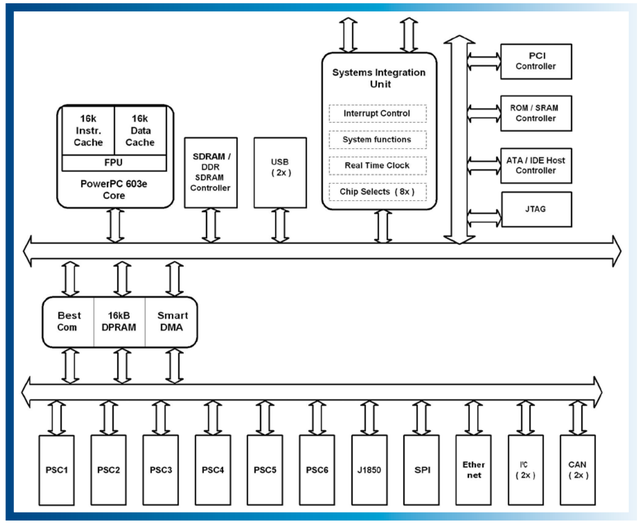
Highlights

TQM5200

- Up to 400 MHz CPU Clock
- Integrated Graphic Controller
- Up to 6 serial interfaces
- Multi-functional external bus (PCI / ATA / IDE)
- Expanded temperature Range
- Low power dissipation / passive cooling
- Small dimension: 80 x 60 mm² (3.15 x 2.36 square inch) or 60 x 56 mm² (2.36 x 2.20 square inch)

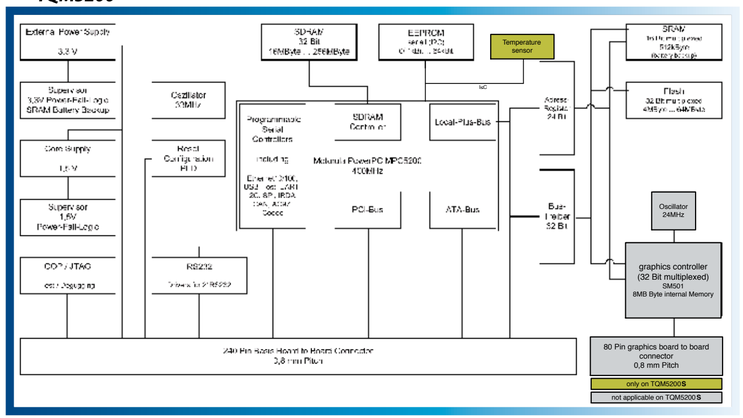
Block diagram

MPC52xx



Heading

TQM5200



TQM5200-*Family*

Module	TQM5200
Microprocessor Type	MPC5200
CPU Clock	400 MHz
Memory	
SDRAM (32 Bit width / 1 or 2 Banks)	16 - 256 MB
Flash (32 Bit width / 1 Bank)	4 - 32 MB
SRAM	0 - 1 MB
EEPROM (I²C Bus)	0 - 32 kB
Interface	
Serial	2x RS-232
Ethernet	10/100 MBit
Graphic (TQM5200 only)	SM501
Address / Data bus	32 Bit / 32 Bit
PCI	yes
USB	2x HOST
General	
Power supply	3.3 V
Temperature range	0°C...+70°C
Temperature sensor	TQM5200S only
Optional	-40°C...+85°C
Plug system	0.8 mm pitch
Pin number (TQM5200/TQM5200S)	320/240
Dimension TQM5200 Dimension TQM5200S	80 x 60 mm² 60 x 56 mm²
Starter kit	STK52xx

NEW:

TQM5200S

The embedded module with the MPC5200 processor now comes in an even smaller format. The small dimensions of new TQM5200S are especially notable (60 x 56 mm² compared to 60 x 80 mm²) along with the additional temperature sensor on the module. This gives you more space and enhances reliability and monitoring.

Small perfection

MPC52xx

The MPC5200 has numerous attractive industrial features: The highly integrated, cost-effective, 760 MIPS embedded PowerPC processor operates at just one watt at 400 MHz, making the processor ideal for use in environments with widely varying temperatures. The controller is based on the MPC603e core with a double-precision floating point unit (FPU). This combination of numerous integrated interfaces, high processing power, and accelerated data throughput makes the MPC5200 ideal for telematics, control systems, internet-access devices, video processing and instrumentation.