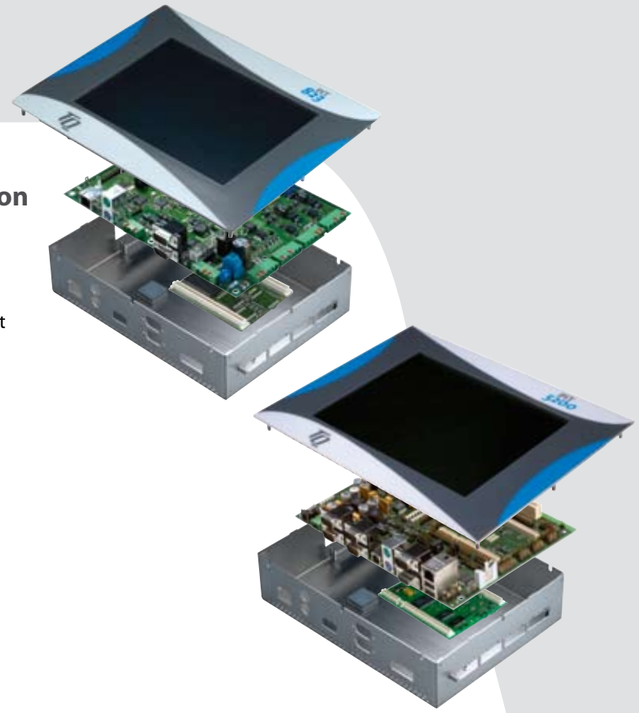
PIT823, PIT5200, TinyBox5200

Central control unit for the industrial manufacturing and automation



Display unit PIT823

- 10.4 inch
- VGA resolution
- Resistiv touch screen

Display unit PIT5200

- 10.4 inch
- XGA resolution
- Touch screen: on request

Motherboard PIT823MB / STK5200

- Compact design
- Robust plug connector
- Plug-in connection for all essential module I/Os

TQM823L

- 50 / 66 MHz
- VGA display controller
- up to 64 MB SDRAM, up to 8 MB on-board flash
- Compact flash interface
- 2x CAN interfaces
- 1x RS-485 or 2 x RS-232
- 10BaseT
- Four digital I/Os

TQM5200

- 400 MHz
- XGA Display controller
- Up to 256 MB SDRAM, 1MB SRAM, up to 32 MB on-board flash
- Compact flash interface
- 2x CAN interfaces
- 2x RS-232
- 10/100BaseT

Designed for industrial use

- Front: IP65 protected
- Robust high-grade steel housing
- Protection against shock & vibration
- Optimized to a wide temperature range: 0°C..+70°C
- Passive cooling
- EMV tested

The TQ Group - The entire world of electronics
The TQ Group is composed of TQ Systems, TQ Mechanics and TQ Components

Founded in 1994, the system supplier TQ Systems develops and produces electronic modules and systems according to customer specifications. In the corporate family, TQ Mechanics is responsible for mechanical production. TQ Components markets embedded systems and industrial PCs developed and produced by TQ systems. The TQ Group has over 450 employees. Overall sales attained EUR51.2 million in business year 2004/2005.

TQ Components product line

One of the strengths of the company is self-developed embedded TQ modules. TQ offers an entire range of controllers: In addition to 16-bit and 32-bit Infineon modules, the product line includes a wide selection of Freescale and Intel-based processor boards. The modules are distinguished by their small size and long-term availability, and they satisfy high quality standards. TQ's aim remains industry-compatibility and longevity.

Another important pillar of the company is industrial PCs. They are distinguished by superior robustness and long-term availability. The space-saving mini-industrial PCs boast of a high degree of modularity. The customer can create individualized solutions without acquiring unnecessary product components.

Operating system and tool partner for TQ modules

RTOS / Linux

RTOS / QNX

TQ components

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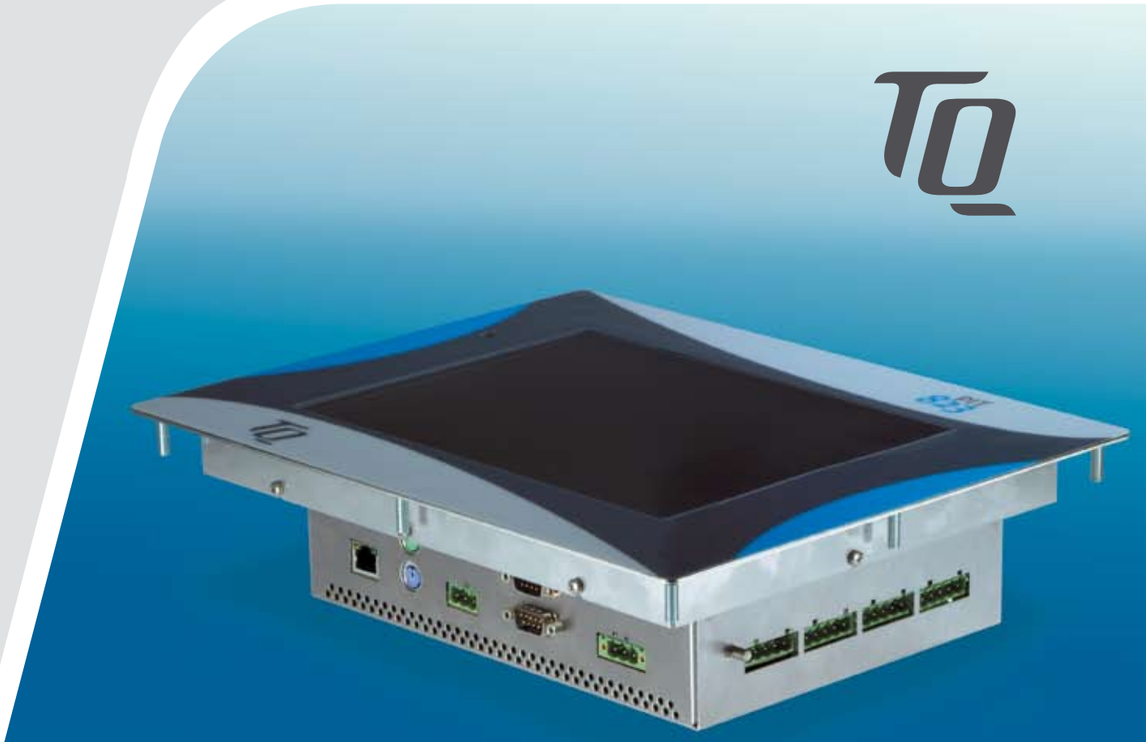
Data sheet PIT823,5200 Rev.300 Document-No: PIT823,5200.DBD.300



Modular – it fits!

INDUSTRIAL TERMINAL

PIT823, PIT5200 TB5200

freescale™ Enabled

PowerPC™

Industrial Terminal

PIT823

The PIT823 in a robust, high-grade steel housing is a compact man/machine interface for tough industrial jobs. It is an ideal central control unit for industrial manufacturing and automation.

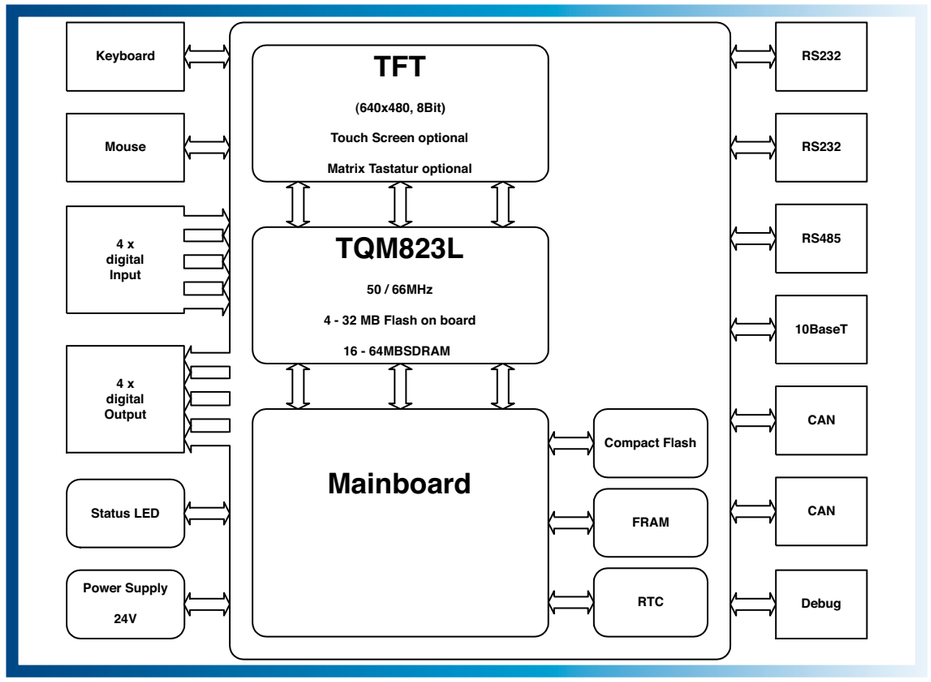
The compact design takes into account the restricted space available for integrating it into a machine, system or control cabinet. The 100% industry-compatible panel meets the tough demands posed by shock, vibration, temperature and EMC. The overall system is specified for a reference temperature range of 0°C to +70°C. The electronics can be optionally offered in an industrial temperature range of -40°C to +85°C. Passive cooling is sufficient for the PIT823 due to the low power loss of the processor. As all industrial products from TQ, the PIT823 has long-term availability.

The heart is the 54 x 44 mm² (2.13 x 1.73 square inch) TQM823L module of TQ -components. The 50 MHz MPC823e is equipped to master nearly every task in control technology. The VGA display controller integrated in the processor can image highly complex processes. With SDRAM expandable to 64 MB and up to 8 MB of on-board flash memory, the embedded module masters the demands of conventional embedded operating systems. Additional memory can be integrated in the system via the compact flash slot.

Two CAN interfaces are available for the user in the PIT823. In addition, communication can occur via the RS-485 interface or one of the two RS-232 interfaces. A 10 Mbit Ethernet connection is available as a LAN interface. Four short-circuit-proof digital inputs and outputs can be used to enter external values and control peripherals. Users can enter data via a PS2 mouse, a keyboard, or a touch screen. An 8 x 8 matrix keyboard can also be provided. Embedded Linux comes preinstalled as the operating system on the PIT823. MicroWindows or QtEmbedded can be used as the GUI.

Block diagram

PIT823



Industrial Terminal

PIT823

Product identification	PIT823
System architecture	
Microprocessor	MPC823e
CPU-Frequency	50MHz / 66MHz
Flash on Board	4MB - 8MB
Compact Flash	32MB - 128MB (1)
SDRAM	16MB - 64MB
FRAM	32kB
Interfaces	
Ethernet	10BaseT
RS232	2
RS485	yes
CAN	2
Digital Input	4
Digital Output	4, short circuit proof (2)
RTC	over I²C Bus
Keyboard	PS2
Mouse	PS2
Option:	8 x 8 Matrix keyboard
Display	
Size	10,4"
Resolution	VGA 640 x 480
Colour depth	8 Bit
General	Status LED
Touch Screen	4 wire, resistive
General	
Supply	nominal 24VDC (+30% / -20%)
Operating system pre-installed	Embedded Linux
Graphical interface	MicroWindows or Qr/Embedded
Protection	IP65 (3)
Ambient temperature PIT823	0°C - 70°C
Ambient temperature electronic	-40°C - +85°C
Dimensions approx 10,4"	320 x 250 x 80 mm³

(1) Further types on request
(2) 500mA / channel, maximal 1A over all 4 channels
(3) From front by rag integration

Highlights

PIT823

- Numerous industrial interfaces: CAN, RS-485/RS-232, Ethernet, digital I/O
- Enhanced temperature range
- Front faceplate: IP65
- Rugged & compact design
- Shock & vibrations protected
- Passive cooling

IPC with a
PowerPC heart

TQ Components presents the industrial terminal PIT5200. Based on the TQM5200 embedded module and the STK5200 mainboard, the IPC mounted in robust stainless steel is equipped with a 10.4 inch display.

The PIT5200 has numerous performance features that were frequently missed in x86-based IPC hardware: Passive cooling, low energy consumption, industrial interfaces (CAN, J1850), expanded temperature range for the electronics, and high long-term availability.

With 760 MIPS at 400 MHz, the Freescale MPC5200 processor offers sufficient performance to be used as Soft SPS hardware and a control or arithmetic unit in an industrial environment.

Numerous interfaces

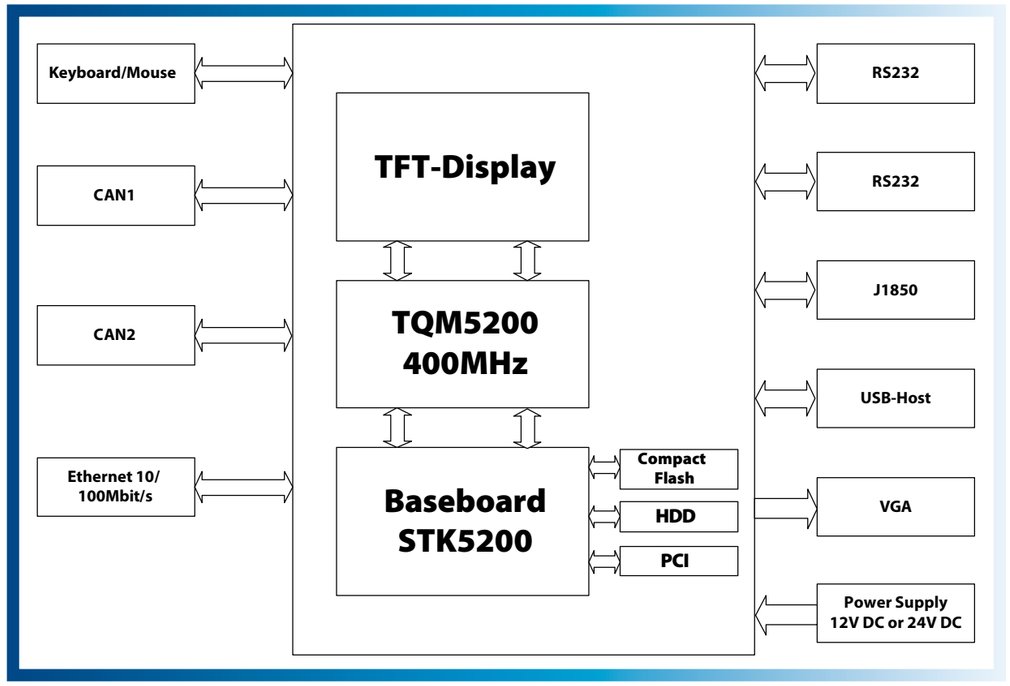
A fast Ethernet interface provides the connection to the network. Also available are two serial interfaces, two CAN interfaces, and the J1850 interface from the automotive industry. The CAN signals are isolated by means of optocouplers. The optocouplers also act as lever shifters. The USB host interface directly supplies +5V from the USB bus supply voltage. Two separate PS/2 jacks are available for a mouse and keyboard on the connection field. A compact flash slot is connected to the IDE/ATA interface of the processor. On the mainboard, the internal PCI interface of the MPC5200 runs to a PCI slot. Users can configure the PCI slot to a PCI initiator or target functionality. An additional external screen can be connected via the VGA interface. The internal TFT signal coming from the graphic controller is connected to the 10.4 inch display. The integrated graphic controller offers resolutions up to 1280 x 1024. The 8 Mbyte large internal graphics memory relieves the CPU and memory interface. The touch control is operated via internal control signals so that expensive serial interfaces do not have to be used.

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 save entire operating systems. Depending on the model features, 16 Mbyte – 256 Mbyte SDRAM is available as main memory. An internal hard disk serves as an additional mass storage in addition to the external CF slot.

The PIT5200 comes standard with Linux 2.4. Based on the MPC5200 embedded processor, there are numerous other operating systems and BSP offered by other real-time operating system manufacturers. Manuals are included in the delivery in addition to the plug-in power supply and the tool CD. Users can download the most recent ELDK development environment for Linux from "Denx Computer Systems GmbH" www.denx.de as well as software for qt/Embedded or Micro Windows.

Block diagram
PIT5200



Industrial Terminal
PIT5200

Product identification	PIT5200
System architecture	
Microprocessor	MPC5200
CPU-Frequency	400MHz
Flash on Board	4MB - 32MB
SRAM	up to 1 MB
EEPROM	0-64k
Compact Flash	32MB - 512MB (1)
SDRAM	16MB - 256MB
RTC battery backed	YES
Interfaces	
Ethernet	1x10/100BaseT
RS232	2
CAN	up to 2 x 2.0
USB	1 x 1.1 HOST
J1850	YES
Keyboard	PS2
Mouse	PS2
CRT	up to SXGA
Display	
Size	10,4"
Resolution	XGA 1024x768
Touch Screen	on request
General	
Supply	12V±10% or · 24V±25%
Operating system pre-installed	Embedded Linux
Graphical interface	MicroWindows or Qt/Embedded
Protection	IP65 (2)
Ambient temperature	0°C - 60°C (3)
Dimensions approx 10,4"	320 x 250 x 80 mm³

(1) Other sizes on request
(2) Front IP65, housing IP20
(3) extendet temp range on request

Highlights
PIT5200

Designed for industrial applications

- Front: IP65 protection
- Rugged high-grade steel case
- Shock & vibration proof
- Extended temperature range
- Passive cooling

Mini industrial terminal

with Linux

TQ Components gets small: The mini industrial terminal in the size of a Slimline disk drive. The TB5200 Tiny Box integrates powerful communication interfaces with high processing performance in a tiny space.

The TB5200 is based on the TQM5200 embedded module and the MPC5200 PowerPC processor by Freescale. With 760 MIPS at 400 MHz, the Freescale processor offers sufficient performance for use as Soft SPS hardware and a control or arithmetic unit in an industrial environment.

The module offers all the functions of the MPC5200 and supplements them with additional features. Despite the diminutive dimensions of 125 x 105 x 30 mm³, the aluminum Tiny Box offers numerous interfaces and functions. In addition to the PoE Ethernet (100BaseT), there are two serial interfaces (HW handshake – RTS/CTS and touch), two USB interfaces and CAN. The USB interfaces can offer a maximum 500 mA for external devices.

The user can simultaneously connect two displays with different contents. A VGA18-bit TFT interface are available. A touch display is controlled via the RS-232. The SM501 integrated graphic controller offers resolutions up to 1280 x 1024. With an 8 MByte internal graphics memory, the SM501 attains high-level performance and can also produce complex graphic user interfaces.

Other features: Installed compact flash serves as mass storage of nearly unlimited size. Up to 32 Mbytes are available on the on-board flash memory, however. The working memory can be equipped with 16 MBytes to 256 MBytes SDRAM depending on the module features. Furthermore, up to 1 MByte SRAM and 64 KBit EEPROM is integrated in the module.

A realtime clock with battery buffering is also featured. The TB5200 runs on 10 to 30 Volts or PoE. The voltage supply for the TFT backlight comes from an internal 12 Volt controller.

The TB5200 comes standard with Linux 2.4. Based on the MPC5200 embedded processor, there are numerous other operating systems and BSP offered by other real-time operating system manufacturers. A complete set of manuals are included in the delivery in addition to the plug-in power supply and the tool CD. Users can download the most recent ELDK development environment for Linux from the TQ website as well as adapted software for qt/Embedded or Micro Windows. TB5200 optionally comes with a top hat rail holder.

The TB5200 works in an extended temperature range and the lower power loss of the processor (approximately 2 Watt) enables passive cooling. As is the case with all Freescale-based embedded products, the TB5200 will remain available for at least 5-10 years.

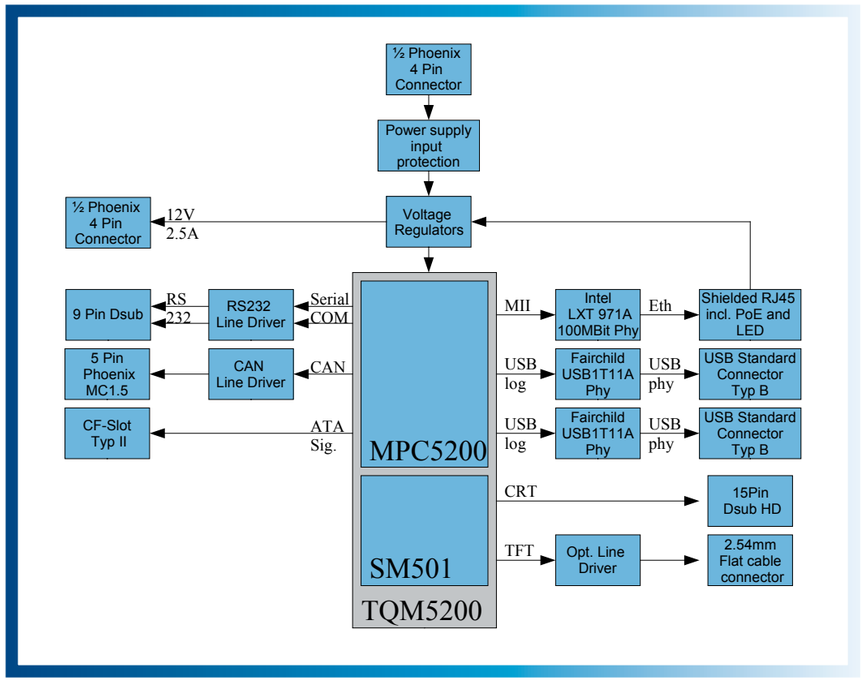
Highlights

TB5200

- Very slim dimension
- Rugged aluminium case
- High-performance 32-bit embedded PowerPC processor
- Integrated graphic-controller up to SXGA, parallel application with two displays and different data content
- Enhanced temperature range
- Passive cooling
- Very low power dissipation, predestined for PoE
- Safe rugged plug connections
- Long availability

Block diagram

TB5200



Mini-Industrial-PC

TB5200

Product Name	TB5200
Systemarchitektur	
Microprocessor	MPC5200
CPU-Frequency	400MHz
Flash on Board	4MB - 32MB
SRAM	up to 1 MB
EEPROM	0-64k
Compact Flash with ejector	32MB - 512MB (1)
SDRAM	16MB - 128MB
Interfaces	
Ethernet	1x10/100BaseT
RS232	2
USB	2 x 1.1 HOST
TFT	18bit
Backlight control	12V, max 2,5A
CRT	up to SXGA
General	
Supply	10-30VDC, optional PoE max 15W
Operating system pre-installed	Embedded Linux
Graphical interface	MicroWindows or Qt/Embedded
Protection	IP20
Ambient temperature	0°C - 60°C (2)
Dimensions approx 10,4“	120 x 105 x 30 mm³
(1) Other sizes on request (2) extendet temp range on request	

Status: 01/06
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