

TC1762

Highly Integrated 32-bit TriCore™-Based
Next Generation Microcontroller for
Automotive Applications



THE TC1762 - member of the AUDDO-NG family - is cost optimized for demanding applications where real-time performance and DSP capabilities combined with an outstanding fast interrupt response time and highest level of fault tolerance are required. AUDDO-NG is based on the award-winning unified 32-bit TriCore™ architecture combining RISC, CISC and DSP functionality in a single chip. New groundbreaking peripherals like the Micro Second bus, fast analog-to-digital converter unit or the Micro Link Interface boosting the overall system performance turns the TC1762 into the most cost effective 32-bit microcontroller for high sophisticated applications of the automotive and industrial market.

Applications

- Automotive engine and transmission control
- Automotive suspension control
- Industrial robotic control

Features

- High performance 32-bit super-scalar TriCore™ V1.3 CPU with 4 stage pipeline
 - Superior real-time performance
 - Strong bit handling
 - Fully integrated DSP capabilities
 - Single precision floating point unit (FPU)
 - 40 - 80 MHz at full automotive temperature range
- Memories
 - 1 Mbytes embedded program Flash with ECC
 - 16 Kbytes data flash for scalable EEPROM emulation
 - 32 Kbytes on-chip SRAM
 - 8 Kbytes instruction cache
 - 8 Kbytes code scratchpad memory
- 8-channel DMA controller
- Sophisticated interrupt system with 2 x 255 hardware priority arbitration levels serviced by CPU
- High performing triple bus structure
 - 64-bit local memory buses to internal flash and data memory
 - 32-bit system peripheral bus for interconnections of on-chip peripherals and further functional units

- One Micro Second bus interface (MSC) for port expansion to external Power ASIC's
- One general purpose timer array module with a digital signal filtering and timer functionality to realize autonomous and complex I/O management (GPTA4)
- Two asynchronous/synchronous serial channels with baud rate generator, parity, framing and overrun error detection (ASC)
- One high-speed synchronous serial channel with programmable data length and shift direction (SSC)
- One high-speed Micro Link Interfaces for serial inter-processor communication (MLI)
- MultiCAN module with two CAN nodes and 64 free assignable message objects for high efficiency data handling via FIFO buffering and gateway data transfer
- 2-channel fast analog-to-digital converter unit (FADC)
- One 32-channel analog-to-digital converter unit (ADC) with 8-bit, 10-bit or 12-bit resolution
- 36 analog input lines for ADC and FADC
- 81 digital general purpose I/O lines
- Digital I/O ports with 3.3 V IO capabilities
- Pin to pin compatible to TC1766
- On-chip debug support OCDS level 1 + 2 (CPU, PCP, DMA)
- TC1766 emulation device for multicore debugging, tracing and calibration via USB 1.1 interface
- Power management system
- Clock generation unit with PLL
- Supply voltage 1.5 V
- I/O voltage 3.3 V
- Full automotive temperature range -40 to +125°C
- P/PG-LQFP-176 package

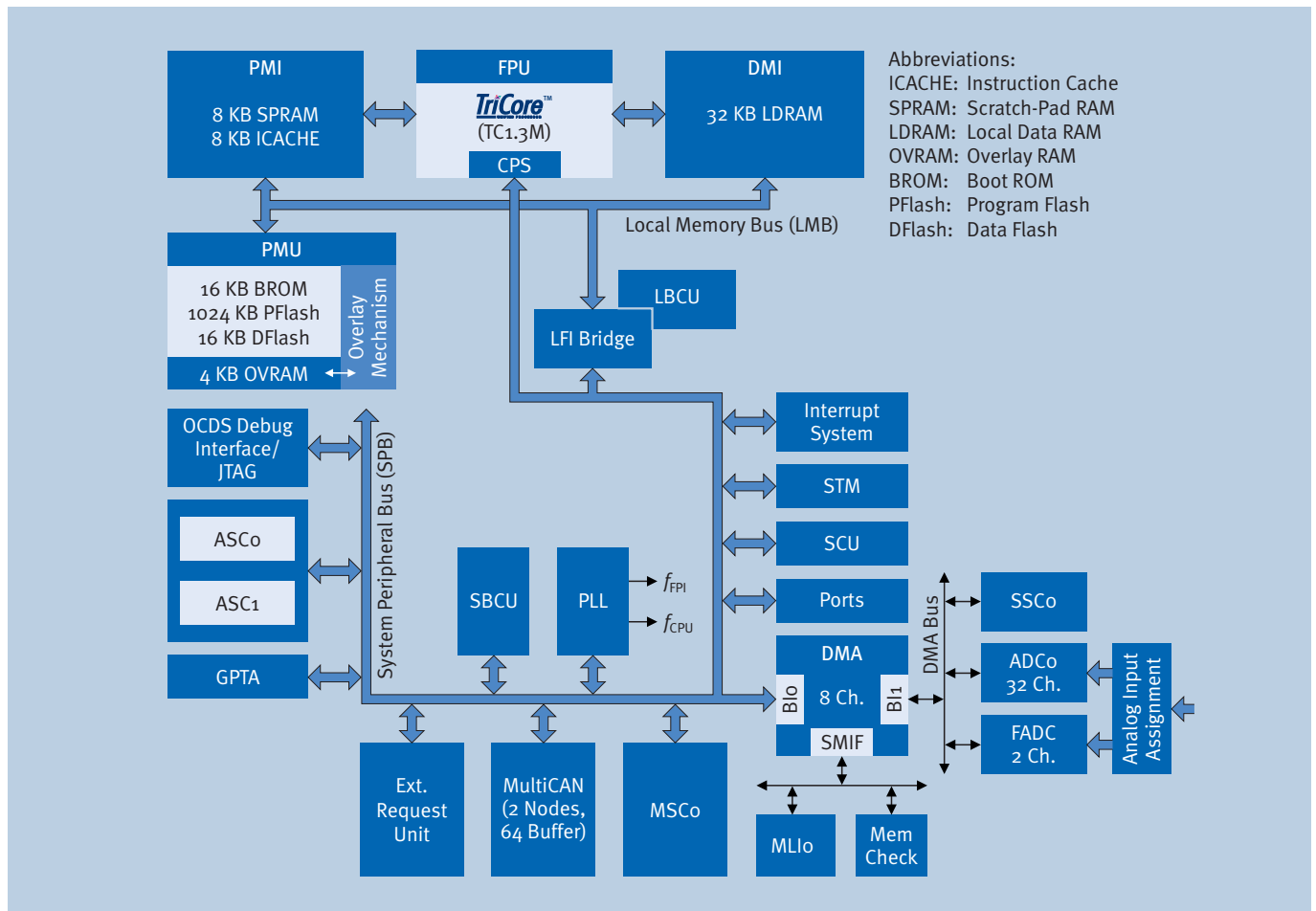
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Never stop thinking

TC1762 Block Diagram



TC1762 The Most Cost Effective Solution for Engine and Transmission Control

Gasoline Engine Control

- Reduced emission levels
- Better engine behavior
- Less fuel consumption

Automated Transmission Control

- Better acceleration
- More comfort
- Less fuel consumption

How to reach us:
<http://www.infineon.com>

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