



TC1767

Highly integrated 32-bit TriCore™-based Microcontroller for Automotive Applications

THE TC1767 IS THE VALUE OPTIMIZED MEMBER of the AUDO FUTURE product family designed for automotive applications. Its 80/133MHz award-winning TriCore™ CPU provides high-end microcontroller performance combined with sophisticated DSP capabilities. A dedicated peripheral control processor (PCP) manages on-chip peripherals and relieves the TriCore™ from standard processing tasks. On top of this, a fast interrupt response time assures low latencies and low performance overhead for interrupt driven systems. Equipped with 2MByte of embedded Flash and a total of 128KByte RAM the TC1767 is a high performance device offering best value for embedded real-time automotive applications. The device is positioned in the mid-range of the AUDO FUTURE product family that covers the complete range from the very high end to very low cost. The comprehensive tool support emphasizes the great scalability of the family products.

Applications

- Engine and transmission control units
- Performance demanding functions like radar equipped adaptive cruise control or chassis domain control
- 4-6 cylinder diesel or gasoline direct injection

Features

- High performance 32-bit super-scalar TriCore™ V1.3.1 CPU with 4 stage pipeline
 - 80/133MHz at full automotive temperature range
 - Superior real-time performance
 - Strong bit handling
 - Fully integrated DSP capabilities
 - Single precision floating point unit (FPU)
- 32-bit Peripheral Control Processor with single cycle instruction (PCP2)
 - 24KByte on-chip SRAM

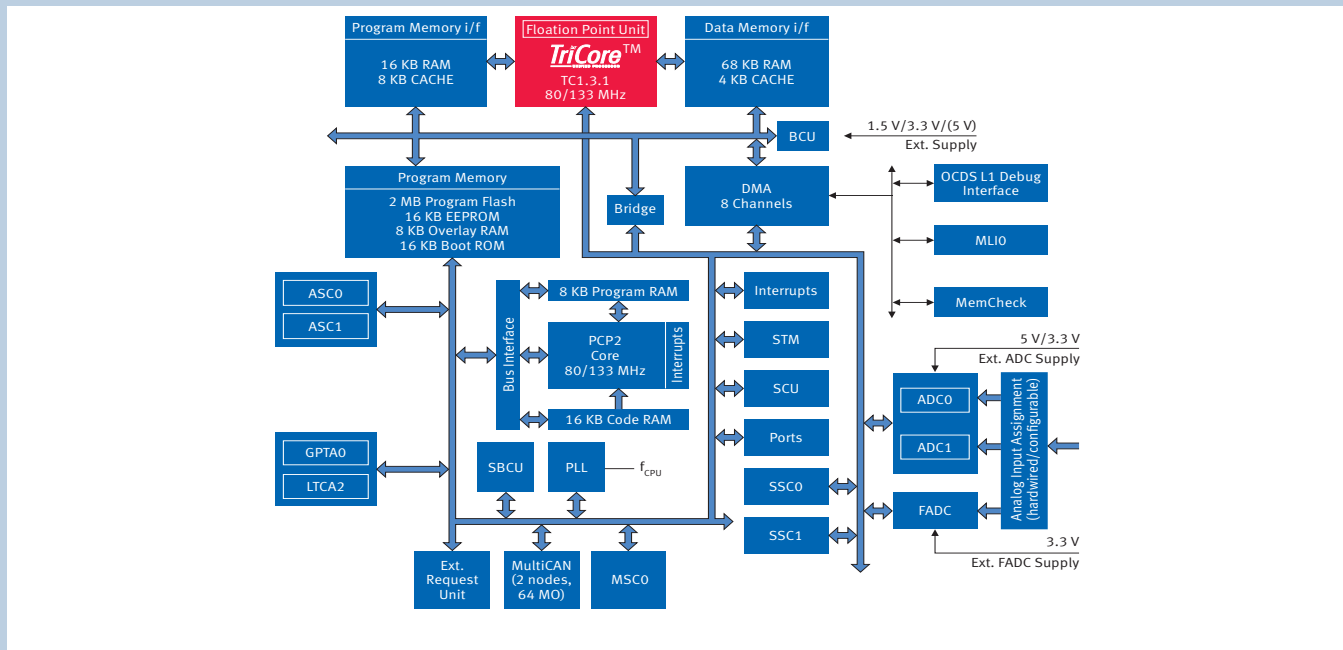
Features

- Memories
 - 2MByte embedded program flash with ECC
 - 16KByte EEPROM (emulated by 64KByte data Flash)
 - 92KByte on-chip SRAM
 - 4KByte data cache
 - 8KByte instruction cache
- 8 DMA channels
- General Purpose Timer Array and local timer cells with digital signal filters and timer functionality to realize complex I/O signalling (GPTA)
- Micro Second bus interface (MSC)
- 2 asynchronous/synchronous serial interfaces (ASC)
- 2 high speed synchronous serial interfaces (SSC)
- High-speed Micro Link Interface (MLI)
- MultiCAN module with two CAN nodes and 64 message objects
- 4 channel fast analog-to-digital converter
- 32 channel analog-to-digital converter @ 5V
- On-chip debug support (OCDS)
- Dedicated emulation device chip for multicore debugging, tracing and calibration
- Core supply voltage 1.5V
- I/O voltage 3.3V
- Full automotive temperature range -40° to +125°C

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Block Diagram



Product Summary

Type	CPU clock	Temperature	Program Flash	Package
SAK-TC1767-256F80HL	80 MHz	-40/125°C	2MByte	QFP-176
SAK-TC1767-256F133HL	133 MHz	-40/125°C	2MByte	QFP-176

Application Example



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