



TC1798-AUDO MAX family

Automotive 32-bit TriCore™ Microcontroller

The TC1798 is the ultimate flagship of the AUDO MAX family. Its 300MHz award-winning TriCore™ CPU provides highest-end microcontroller performance combined with sophisticated DSP capabilities and dedicated safety features. The new TriCore™ version 1.6 offers a significantly increased Floating Point Unit performance and an Integer Division Unit in Hardware. Furthermore memory protection is optimized and Branch prediction is enhanced by a new buffer system. Equipped with 4.0 MByte of embedded flash and a total of up to 288 KByte SRAM (which now comes with Error Code Correction), the TC1798 is one of the highest performing microcontroller for embedded real-time automotive applications. Coming in a BGA516 package TC1798 is the ideal upgrade device for the more compact TC1791 in BGA292. The comprehensive and consistent tool support known from earlier TriCore™ families will also be provided for AUDO MAX family.

Applications

- Engine and transmission control
- 4-6-8 cylinder diesel or gasoline direct injection
- Double clutch transmission
- Hybrid and electric vehicle
- Suspension systems

Features

- High performance 32-bit super-scalar TriCore™ V1.6. CPU with 6 stage pipeline
 - 300 MHz at full automotive temperature range
 - Superior real-time performance
 - Strong bit handling
 - Fully integrated DSP capabilities
 - Single precision floating point unit
- 32-bit Peripheral Control Processor with single cycle instruction (PCP2)
 - 48Kbyte on-chip SRAM

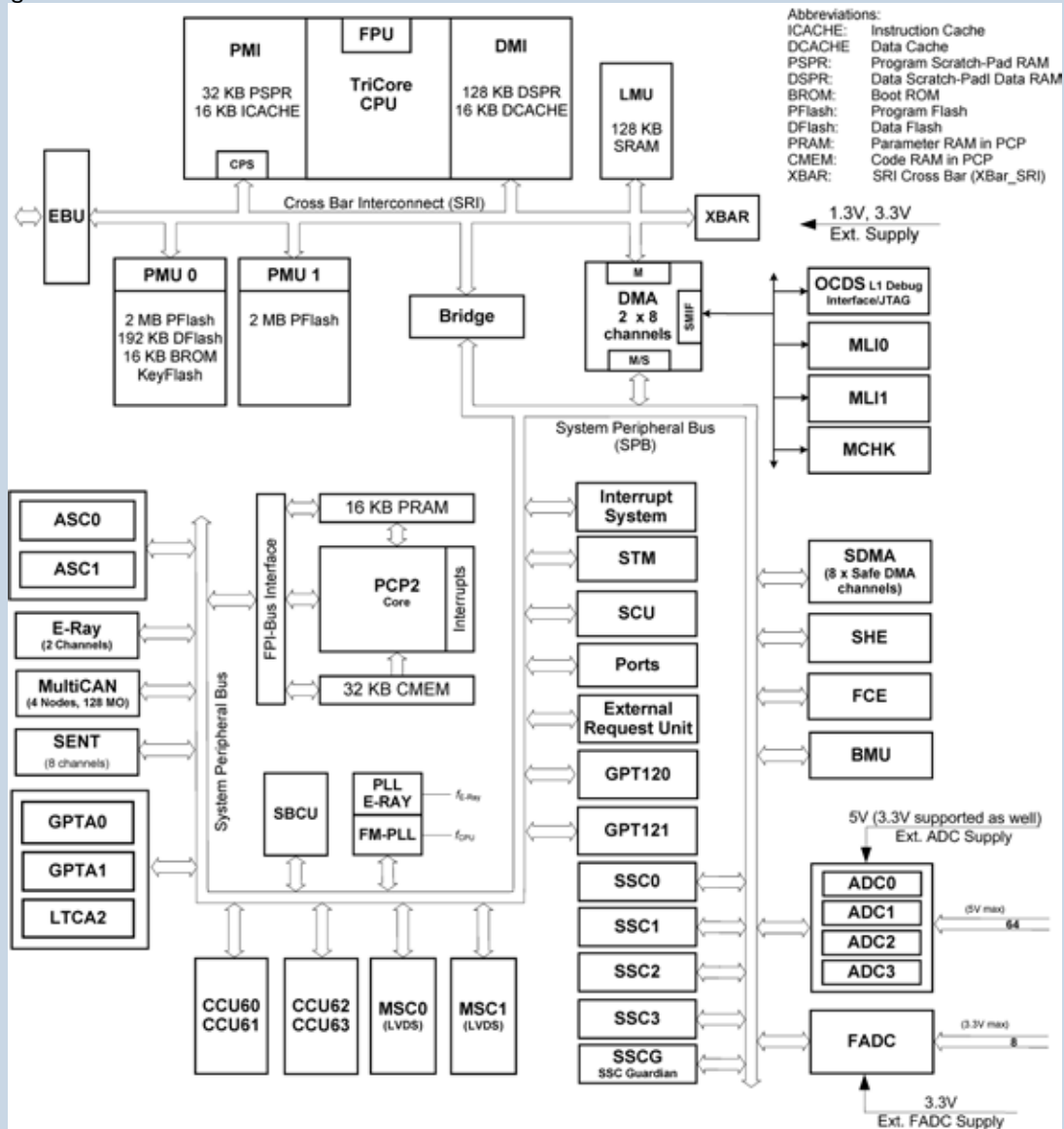
Features

- Memories:
 - 4,0MB embedded program flash with ECC
 - 192KByte data flash
 - 288KByte on-chip SRAM
 - 16KByte Data cache (dedicated)
 - 16KByte Instruction cache (dedicated)
- 24 DMA channels
- 2 General Purpose Timer Arrays (GPTA)
- 4 Capture/Compare Units (CCU)
- 32Bit external memory unit (EBU)
- 2 FlexRay™ channels
- 2 Micro Second bus interfaces (MSC)
- 2 asynchronous/synchronous serial interfaces (ASC)
- 4 high speed synchronous serial Interfaces (SSC)
- 2 High-speed Micro Link Interfaces (MLI)
- MultiCAN module with 4 CAN nodes & 128 message objects
- 4 channel fast analog-to-digital converter (FADC)
- 64 channel analog-to-digital converter (ADC) (5/3,3V)
- 8 SENT channels
- Secure HW Extension (SHE)
- On-chip debug support (OCDS)
- Dedicated emulation device (ED-Device) chip for multicore debugging, tracing and calibration
- Core voltage 1,3V
- Extensive set of safety features
- Full automotive temperature range -40°C to 125°C
- BGA516 package

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Block Diagram



Type	eFlash	DataFlash	Frequency	SRAM	Package	Temp. Range
SAK-TC1798F-512F300EL	4.0MB	192kB*	300 MHz	288 KB	LFBGA516	-40°C...+125°C
SAK-TC1798F-512F240EL	4.0MB	192kB*	240MHz	288 KB	LFBGA516	-40°C...+125°C

*EEPROM emulation (up to 60k w/e cycles)

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