

Faraday FA606TE

Ultra Power Saving ARMv5 Compliant Processor

Highlights

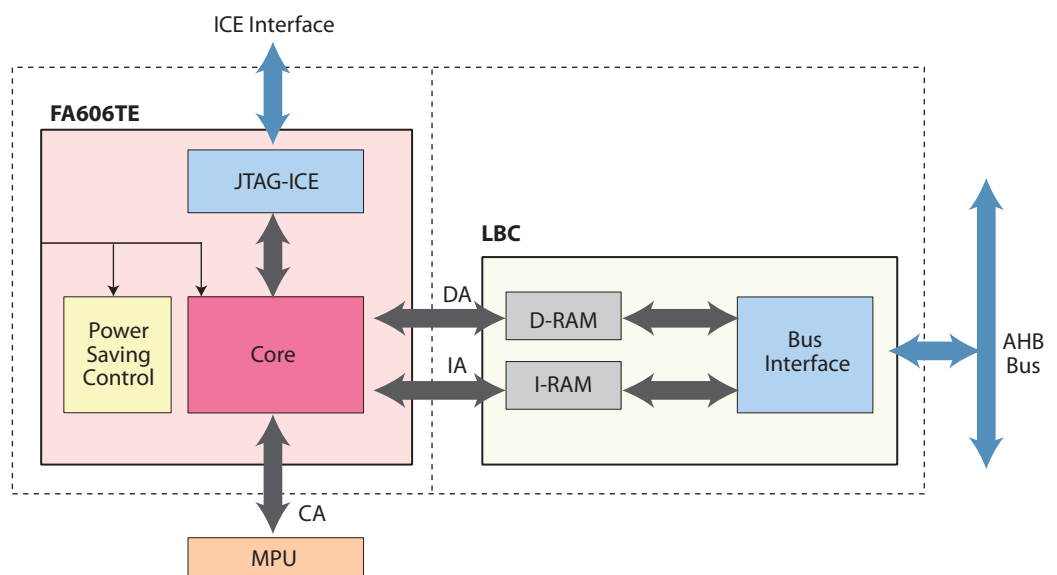
- 32-bit RISC CPU
- Core Frequency:
 - 180MHz @ 0.13um
 - 260MHz @ 90nm
- Dhrystone MIPS:
 - 1.22 MIPS/MHz
- Core Gate Count :
 - 40K @ 0.13um miniLib

Overview

FA606TE is an ultra low power 32-bit RISC with the synthesizable and configurable features. The ultra low power core is special designed for those applications which are both power and cost sensitive, such as general micro controller, SSD controller, industrial controller, bridge controller, and portable audio/video processor. In the 32-bit tiny core market, FA606TE is one of a few cores with built-in DSP extensions that enhance DSP computing capabilities. Moreover, with the 5-stage pipelines, it provides more considerable clock performance than usual. The configurable features of FA606TE include the optional memory protection unit (MPU), local bus controller (LBC), instruction memory (I-RAM) and data memory (D-RAM) from 0KB to 8MB, respectively, which enable to customize the area driven or performance optimization.

As the application and software become more and more sophisticated, 8-bit and 16-bit MCU gradually can not afford the demanded performance in embedded SoC world. The micro processor is often expected to be a control unit, handle some algorithms, and even run a simple operation system (OS) built in some application software at the same time. Since the voice that requires 32-bit RISC to replace the MCU in high-end 8-bit/16-bit market rises from the customers, Faraday's synthesizable and customizable FA606TE is thus designed to keep the same competitive cost and power as the 8-bit/16-bit MCU, but enables the higher performance simultaneously.

FA606TE Functional Blocks



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General Micro Controller

- High end 8-bit/16-bit substitute

PC Peripheral Applications

- SSD controller
- I/O bridge controller
- Printer

Consumer & Emerging Application

- Audio handheld device
- Portable multimedia player
- DSC

Industrial Application

- Industrial controller
- Controller for Automobile

FA606TE Hard Core Version List

Hard Core	Process	Performance (MHz)	Area (mm ²)	Power (mW/MHz)	Availability
FA606TE	0.13um miniLib	180	0.3	0.06	Now

Note: 1. Speed Frequency is based on the worst condition
2. Power consumption is based on typical condition
3. All data are subject to change without notice

FA606TE Features

■ CPU Core

- ARM V5TE[®] instruction set
- 5-stage pipeline
- Two-level interrupt priority
- Address space: 4 GB
- Single phase clock
- Memory-mapped I/O
- On-chip multiplier

■ Memory Subsystem (Optional)

- Supports 4-region definitions for both instruction and data
- Each region can be configured with different sizes and attributes

■ Local Bus Controller (Optional)

- Separated instruction and data memory access
- Support memory wait cycle
- Support bus slave function to access internal instruction and data memory
- AMBA 2.0 interface

■ Miscellaneous

- Easy SoC integration
- Bi-endian support
- Power saving control unit
- Support standard ARM ICE interface
- Support eCOS2.0 operating system

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