Product Brief

Single-chip 32-bit RISC MCU for Real-Time Control with DSP Functionality

Highlights

- High performance:
  - 32-bit MIPS RISC core
  - Fast MAC unit 32 x 32 + 64-bit in one clock cycle
  - Fast ADC, 1.15 µsec conversion time
- Fast Interrupt Response
  - Special Interrupt Controller with full hardware processing
- NANO FLASH™
  - Combines advantages of NAND and NOR Flash technology. Fast write/erase cycles (e.g. <2 sec for 512 KB), industrial temperature range, low-power consumption
- Code Efficiency
  - MIPS16e™–TX RISC,16 & 32-bit Instruction set
  - Advanced instruction set: Bit Operation, Type Conversion Saving/ Recovery of Multiple Registers

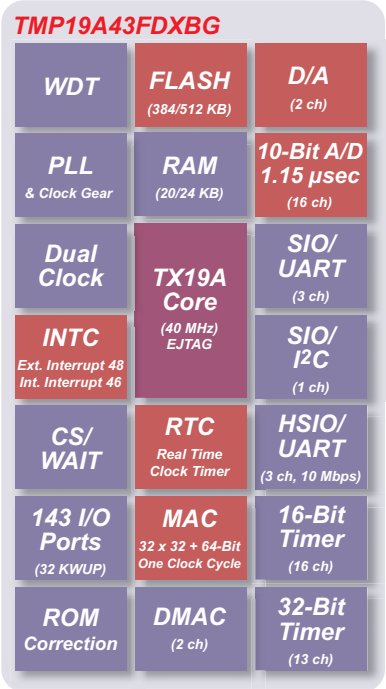
Description

The TMP19A43 is a 32-bit RISC Microcontroller based on the TX19A core and contains NANO FLASH™, a high-speed A/D converter, a large number of external Interrupts and timer/counters. The microcontroller features low-voltage and low-power consumption, making it ideal for battery-driven applications such as portable information equipment, metering and security systems.

Features

- CPU: 32-bit MIPS TX19A RISC core, 40 MHz
  - Up to 512 KB Flash/24 KB RAM Flash and Mask Rom available
  - Two instruction sets:
    1. The 16-bit ISA instruction is compatible with MIPS16e-TX for high code efficiency
    2. The 32-bit ISA instruction is compatible with the TX39, which offers high performance
  - On-chip, high-speed memory
  - Clock generator and on-chip PLL (x4)
  - Sub clock (32.768 kHz)
- MAC unit for DSP function
  - 32 x 32 + 64-bit in a single clock
- 8-ch DMA controller
- Interrupts:
  - External: 48 and Internal: 46
- Timer
  - 16 ch x 16-bit timer
  - 13 ch x 32-bit timer
  - Real Time Clock Timer (RTC)
  - Watchdog Timer (WDT)
- Serial Communication
  - 3 ch x UART/SIO (< 5 Mbps)
  - 3 ch x high speed UART/SIO (10 Mbps)
  - I^2C
- 16 ch x 10-bit A/D converter
  - Conversion time 1.15 sec
- 2-ch 8-Bit D/A converter
- I/Os 143 pins
- Operating voltage
  - Core 1.35V–1.65V
  - I/O and ADC 2.7V–3.6V
  - DAC 2.3V–2.7V
- Package
  - P-FBGA193 (12mm x 12mm, 0.65-mm pitch) QFP 176 in planning

Diagram



	ROM	RAM
TMP19A43FDXBG	512 KB (Flash)	24 KB
TMP19A43FZXBG	384 KB (Flash)	20 KB
TMP19A43CDXBG	512 KB	24 KB
TMP19A43CZXBG	384 KB	20 KB

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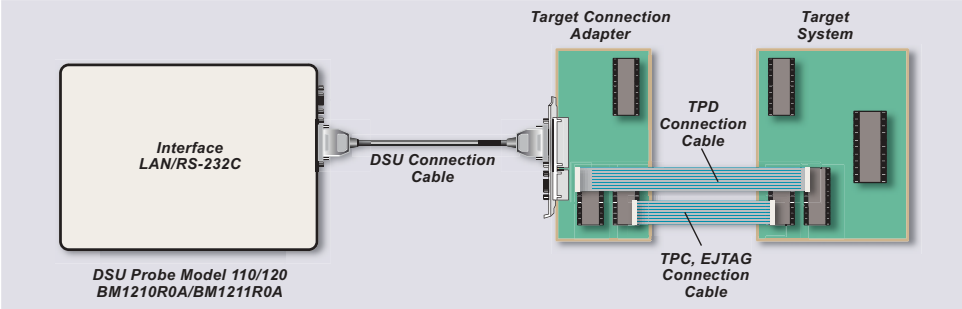
Product Brief

Development Tool Support

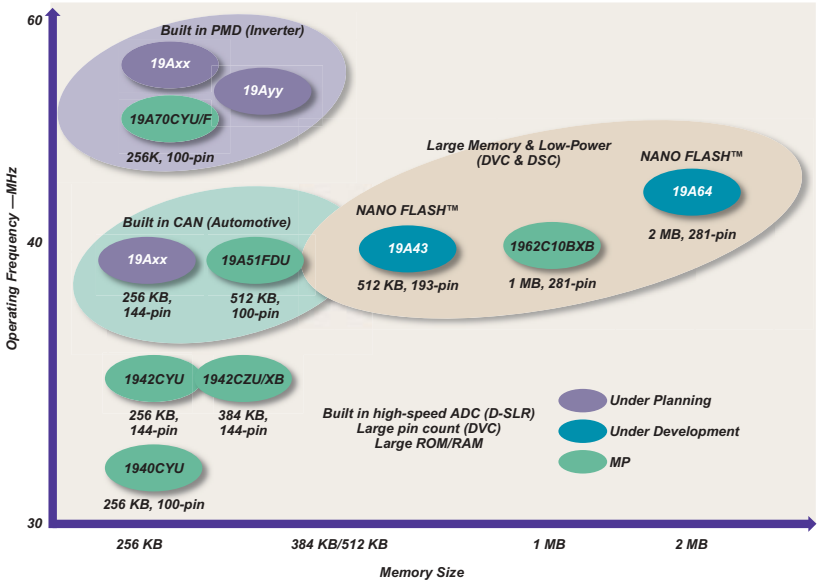
- Minimum five pins for debugging
- Real-time PC trace is available, data trace is available
- Memory reference and write/erase can be executed during program operation
- Write to Flash ROM on the MCU is possible

System Configuration



Item	Order Number
C-Compiler	SW1ACN0-ZCC
Build Manager, Debugger and Simulator set	SW1AMN0-ZCC
DSU Probe: Model 110, 4k frame , PC address	BM1210R0A
DSU Probe: Model 120, 128k frame , PC address/Data	BM1211R0A

Product Line-up



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