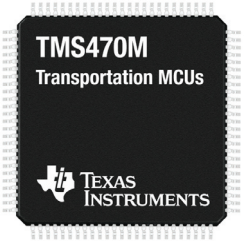
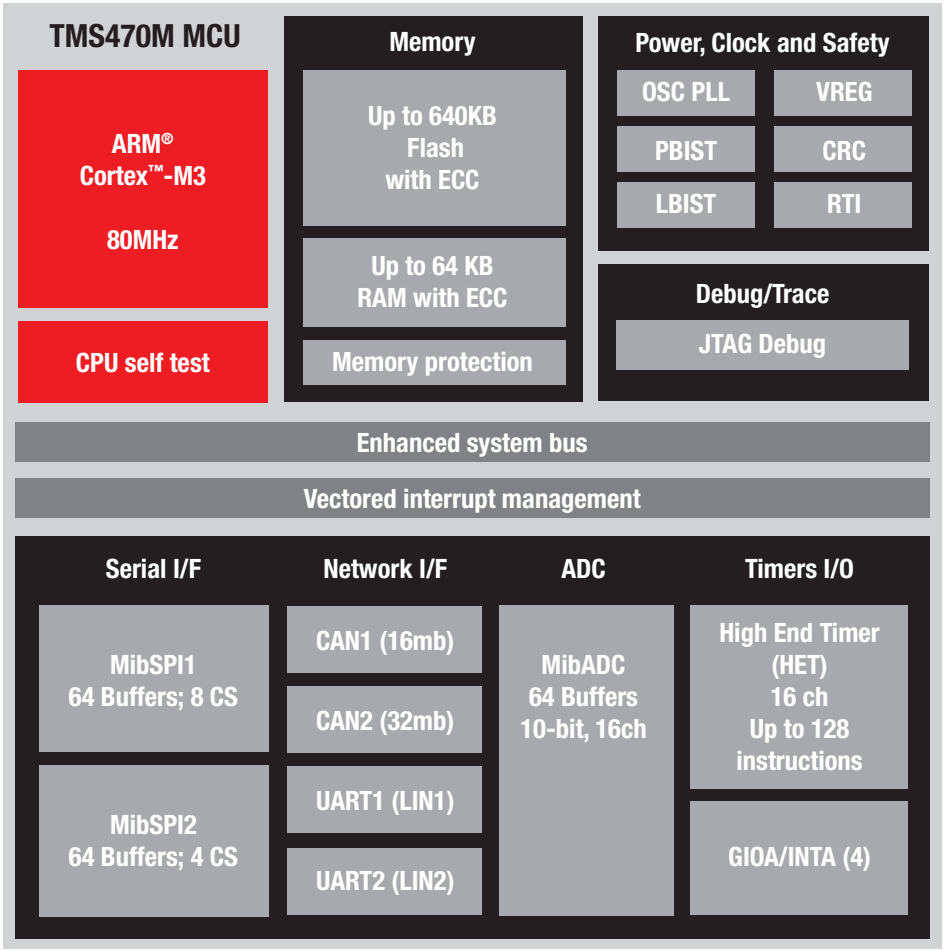
TMS470M Transportation Microcontroller Family



Texas Instruments

The TMS470M microcontroller family enables developers to easily create safety-related applications for the transportation industry. TMS470M microcontrollers use the widely adopted ARM® Cortex™-M3 CPU running at 80MHz. The family offers Flash memory options ranging from 256KB to 640KB (including up to 128KB EEPROM emulation capability) and RAM memory ranging from 16KB to 64KB. A wide range of connectivity and control peripherals include two CAN controllers, two LINs/UARTs, two multi-buffered SPIs, a 10-bit multi-buffered Analog to Digital converter and the powerful High End Timer co-processor module (HET). Built-in safety features like CPU and RAM self test (BIST) engines, error correction code (ECC) and parity-checking make the TMS470M family a great value extension of the well known TI TMS570 Cortex™-R4F family for safety and transportation applications.



Family key features:

- 80MHz Cortex™-M3 CPU
- Up to 640KB Flash / 64KB RAM with ECC protection and EEPROM emulation
- Single 3.3V supply (Vreg on-chip)
- Various communication peripherals 2 CAN, 2 MibSPIs, 2 LIN/UART
- Flexible Timer module (16ch)
- 10-bit Analog/Digital converter (16ch)
- Safety features (ECC, BISTs, CRC)
- Pin and software compatible family
- Embedded debug module

Targeted transportation applications:

- Electric Power Steering (EPS)
- Braking systems (ABS, ESC)
- Safety related automotive
- Automotive infrastructure
- Commercial vehicles
- Off road vehicles
- Railway communication
- Aerospace applications

TMS470M family overview

Device	Speed	Flash	EEPROM or Flash*	RAM	CAN	MibSPI (CS)	UART (LIN)	HET (ch)	MbADC 10-b (ch)	GIO	Voltage	Package	Temp	Q100
TMS470MF03107	80MHz	256KB	64KB	16KB	2	2 (12)	2 (2)	16	16	4	3.3V	100QFP	-40 +125C	Yes
TMS470MF04207	80MHz	384KB	64KB	24KB	2	2 (12)	2 (2)	16	16	4	3.3V	100QFP	-40 +125C	Yes
TMS470MF06607	80MHz	512KB	128KB	64KB	2	2 (12)	2 (2)	16	16	4	3.3V	100QFP	-40 +125C	Yes

Note: * Memory area can be used for code Flash or EEPROM emulation.
Please see the datasheet online at www.ti.com/tms470m for orderable part numbers.

TMS470M development tools

TMS470M USB Development Stick order code:

TMDX470MF066USB; SRP: $79

- 100pin QFP TMS470MF0667 MCU
- Powered by USB only – no power supply required
- On-Board USB XDS100v2 JTAG for on-board emulation (no need for external JTAG emulator)
- On board SCI to USB Serial
- Access to key peripheral pins (30 signals)
- 6 HET LEDs
- Ambient light sensor and temperature sensor
- CAN transceiver
- Reset button

Software

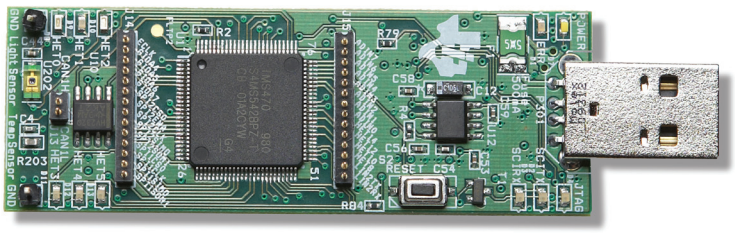
- Code Composer Studio™ v4.2 includes C/C++ compiler/linker/debugger
- Demo Project/Code Examples
- Flash programming integrated into CCStudio
- HET simulator with integrated Synapticad WaveViewer

TMS470M power management and interfacing

Device	Product description	Status
TPS7A6333	High-voltage (45V), low Iq LDO with Window Watchdog	Samples
TLV70033	Cost-effective LDO post regulator	Available
TPS43330	Dual buck/boost controller, 60V load dump, input down to 2V, Iq=30 µA	Samples
TPS54040	42-V step-down converter with integrated FETs and ECO-Mode™	Available
TPS54x62	Buck converter with integrated supervisor, Iq=50µA, 1A, 2A or 3A	Available
SN65HVDA100	LIN transceiver with 5V and 3.3V I/O, sleep mode, inhibit pin	Samples
SN65HVDA54x	CAN transceiver with I/O level shifting, low power mode and wakeup	Available

A wide range of automotive qualified analog devices is available – please check for more at www.ti.com/automotive.

TMS470M USB Development Stick



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