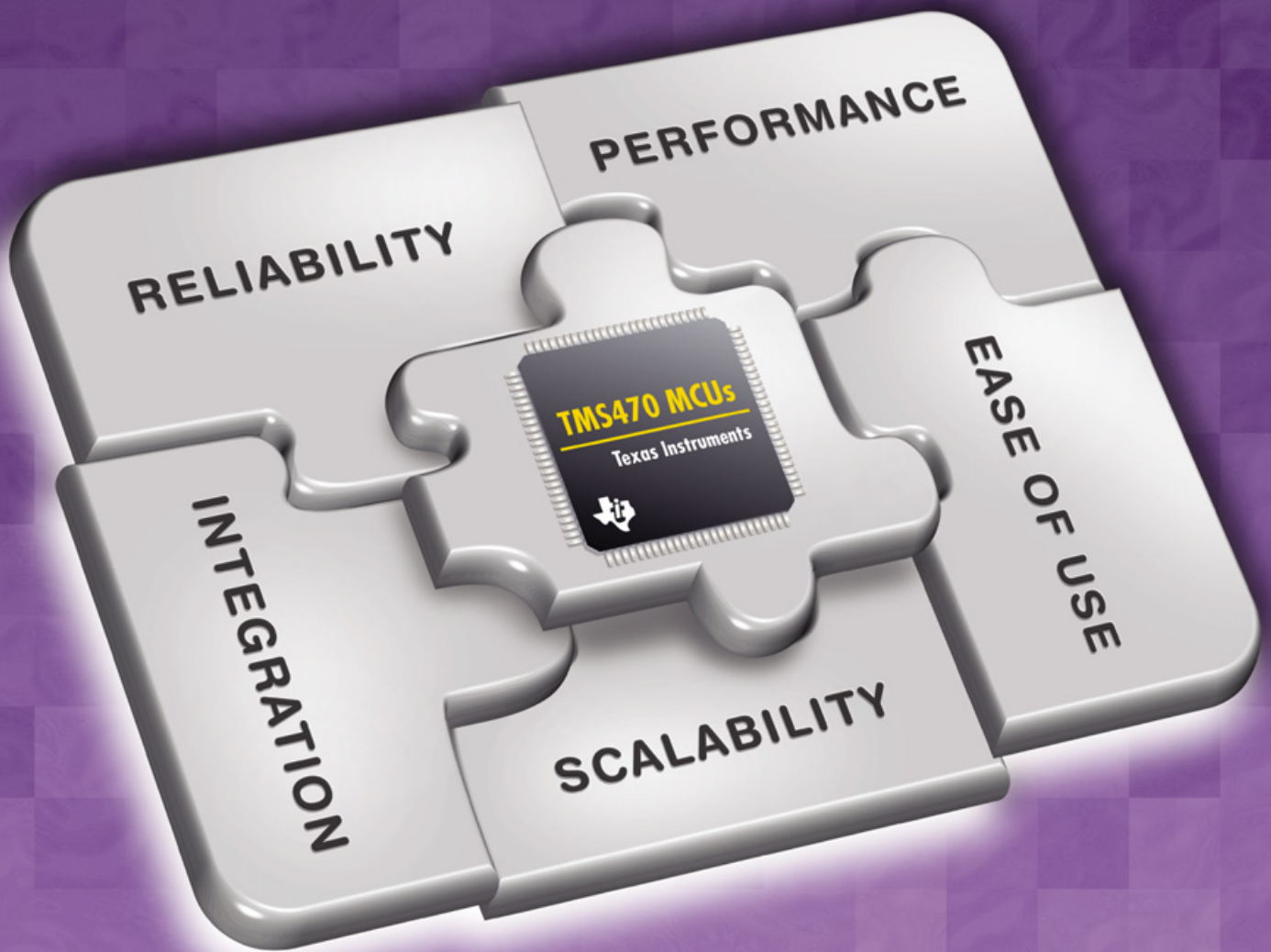


TMS470 Microcontroller

32-Bit RISC ARM7TDMI®-Based Microcontroller Platform



TMS470 Microcontrollers

Building upon the success of its popular MCU products, Texas Instruments (TI) expands its line of microcontrollers. TI—the largest, most experienced licensee of Advanced RISC Machines (ARM®) Ltd. cores—is now offering the TMS470 platform of microcontrollers to the mass market. Having gained extensive experience through its development in wireless, imaging and industrial markets, TI is a proven supplier of ARM® core-based devices.

Architecture

The TMS470 is derived from the 32-bit ARM7TDMI® core.* This industry-standard architecture includes two instruction sets—32-bit instructions for fast execution and 16-bit instructions for high code density. It allows unlimited switching between instruction sets and also provides run-time decompression. This gives the designer ultimate flexibility when designing for high-speed operation or high-density code.

Product Portfolio

The TMS470 microcontroller platform has devices ranging from 64 KB to 1 MB of Flash memory and a wide variety of intelligent peripherals including up to 32 timer channels, 16 channels of 10-bit analog-to-digital converters and a variety of communication interfaces.

TMS470 microcontrollers are targeted for applications requiring the highest levels of performance and quality with the flexibility of a scalable architecture and a rich peripheral set. Typical applications include industrial systems, medical instrumentation, consumer electronics, data processing and many other general-purpose embedded applications.

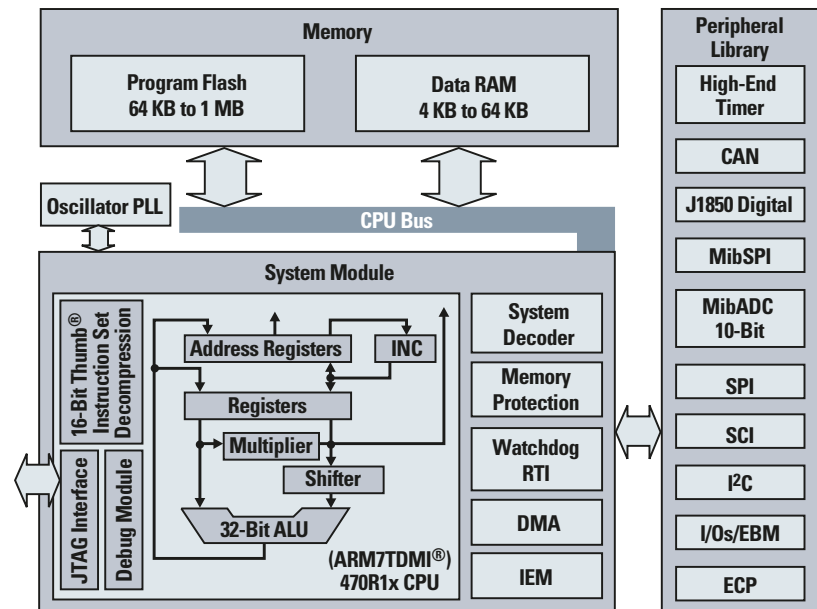
TI's TMS470 ARM7TDMI®-based MCUs bring you a complete microcontroller solution with quality, reliability and support from the most experienced ARM® manufacturer.

*T = Thumb® extension, D = Debug module, M = Multiplier and I = JTAG Interface.

Key Benefits

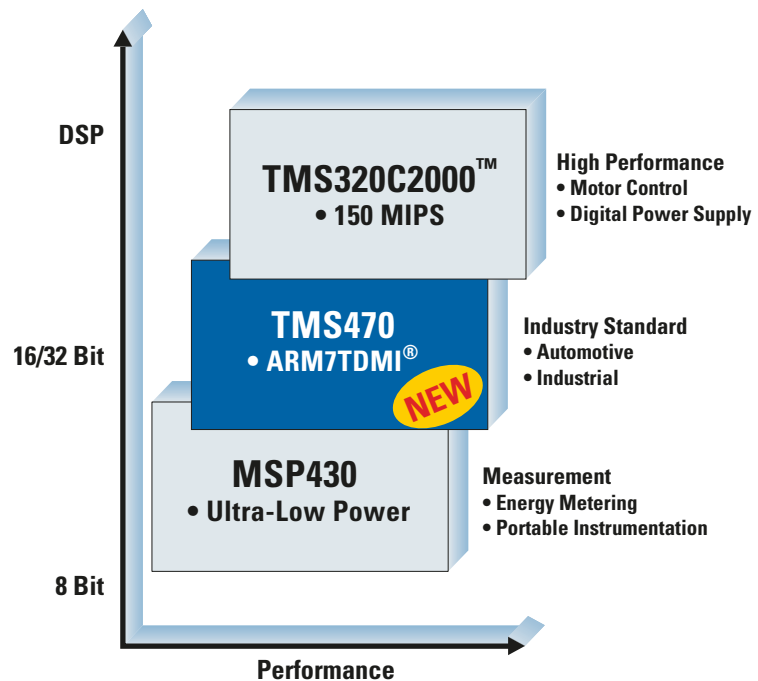
- Reliability
 - Proven supplier of ARM® core-based devices
 - Used in safety-critical applications
- Performance
 - Up to 60 MHz
 - High-performance peripherals
- Integration
 - Wide offering of peripherals
 - Leading process technologies
- Scalability
 - Industry-standard architecture
 - Large portfolio of devices with Flash memory options from 64 KB to 1 MB
- Ease of Use
 - Easy-to-use tools speed time-to-market
 - Devices available today

TMS470R1x Block Diagram



The TMS470R1x generation of MCUs utilizes the ARM7TDMI® core combined with intelligent peripherals and embedded memory to address a wide range of application needs.

TI Microcontroller Portfolio



TMS470R1x Platform Selection Guide

Device	Package	Memory		Peripherals						I/O 3.3 V	Max Sys Clk (MHz)	Price ⁷
		Flash (KB)	RAM (KB)	Timer ¹ Channels	ADC	SPI	SCI	CAN ²	Other			
TMS470R1A64	80 LQFP	64	4	13	8 ch, 10-bit	2	2	SCC	C2SI ³	40	48	4.95
TMS470R1A128	100 LQFP	128	8	16	16 ch, 10-bit	2	2	SCC	C2SI ³	50	48	5.95
TMS470R1A256	100 LQFP	256	12	16	16 ch, 10-bit	2	2	SCC	C2SI ³	50	48	6.85
TMS470R1A288 ⁴	100/144 LQFP	288	16	12	12 ch, 10-bit	2	2	2 x SCC	C2SI ³ , I ² C, DMA, EBM ⁵ , MSM ⁶	93	48	8.95
TMS470R1A512 ⁴	144 LQFP	512	32	32	16 ch, 10-bit	3	2	2 x HECC	DMA	87	60	9.95
TMS470R1A768 ⁴	144 LQFP	768	48	32	16 ch, 10-bit	5	2	3 x HECC	DMA	87	60	13.95
TMS470R1A1024 ⁴	144 LQFP	1024	64	12	12 ch, 10-bit	2	3	2 x HECC	I ² C, DMA, EBM ⁵ , MSM ⁶	93	60	TBD

¹The high-end timer (HET) is a programmable timer co-processor with up to 32 associated timing output pins for timer functions such as capture, compare, pulse width measurement and general-purpose I/O channels.

²CAN 2.0B digital controller. Standard CAN controller (SCC) has 16 message mailboxes; high-end CAN controller (HECC) has 32 message mailboxes.

³C2SI = Class II Serial Interface.

⁴Product preview. Available in 2005.

⁵EBM = Expansion Bus Module.

⁶MSM = Memory Security Module.

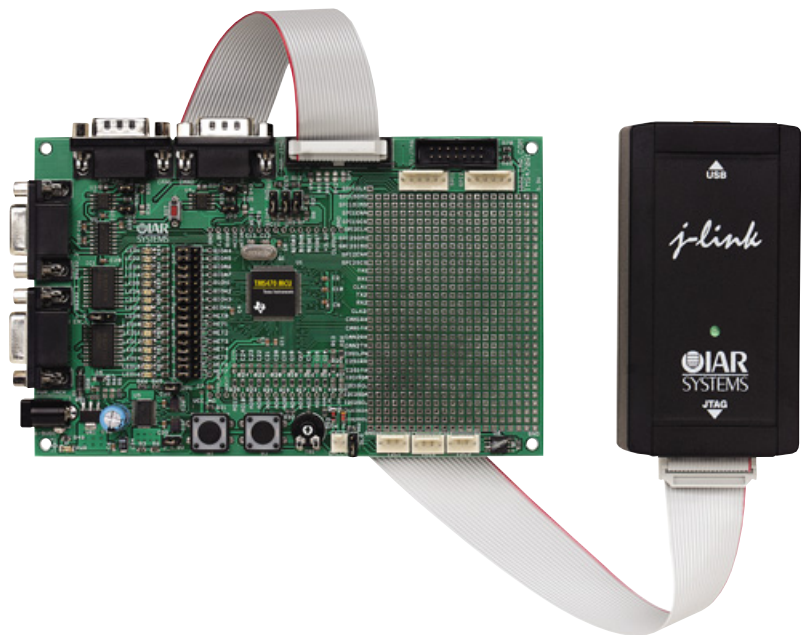
⁷Suggested resale price in U.S. dollars in quantities of 1000.

Development Tools

A complete integrated development environment (IDE) is available from TI. The TMS470 Kickstart Development Kit (TMS-FET470A256) contains all necessary hardware and software to design, develop, implement and test your application directly on chip. The kit is available from TI and distributors for only \$399. The kit includes:

- Development board with TMS470R1x device
- JTAG debugger with USB connector
- Kickstart version of IAR Embedded Workbench for ARM including IDE, C-compiler and Simulator

In addition, many third-party tools supporting ARM7TM-based devices are available.



Resources

To access any of the Reference Guides, type the URL www-s.ti.com/sc/techlit/litnumber and replace **litnumber** with the number in the Literature Number column.

Part Number	Description	Price
TMS-FET470A256	TMS470 Kickstart Development Kit	\$399

Name	Literature Number
Reference Guides	
TMS470 Peripherals	SPNU248
Controller Area Network (CAN) Module	SPNU197
External Clock Prescaler (ECP) Module	SPNU202
Flash Module	SPNU213
General Purpose Input/Output	SPNU192
High-End Timer (HET) Module	SPNU199
Multi-Buffer A/D Converter (Mib ADC) Module	SPNU206
Serial Communication Interface (SCI) Module	SPNU196
Serial Peripheral Interface (SPI) Module	SPNU195
System Module	SPNU189
Zero-Pin Phase-Lock-Loop (ZPLL) Clock Module	SPNU212
Class II Serial Interface	SPNU218, SPNU214



Get started today at www.ti.com/tms470
Development boards, datasheets, reference guides and more

TI Worldwide Technical Support

Internet

TI Semiconductor Product Information Center Home Page

support.ti.com

TI Semiconductor KnowledgeBase Home Page

support.ti.com/sc/knowledgebase

Product Information Centers

Americas

Phone +1(972) 644-5580
Fax +1(972) 927-6377
Internet/Email support.ti.com/sc/pic/americas.htm

Europe, Middle East, and Africa

Phone
Belgium (English) +32 (0) 27 45 55 32
Finland (English) +358 (0) 9 25173948
France +33 (0) 1 30 70 11 64
Germany +49 (0) 8161 80 33 11
Israel (English) 1800 949 0107
Italy 800 79 11 37
Netherlands (English) +31 (0) 546 87 95 45
Russia +7 (0) 95 7850415
Spain +34 902 35 40 28
Sweden (English) +46 (0) 8587 555 22
United Kingdom +44 (0) 1604 66 33 99
Fax +(49) (0) 8161 80 2045
Internet support.ti.com/sc/pic/euro.htm

Japan

Fax International +81-3-3344-5317
Domestic 0120-81-0036
Internet/Email International support.ti.com/sc/pic/japan.htm
Domestic www.tij.co.jp/pic

Asia

Phone
International +886-2-23786800
Domestic Toll-Free Number
Australia 1-800-999-084
China 800-820-8682
Hong Kong 800-96-5941
Indonesia 001-803-8861-1006
Korea 080-551-2804
Malaysia 1-800-80-3973
New Zealand 0800-446-934
Philippines 1-800-765-7404
Singapore 800-886-1028
Taiwan 0800-006800
Thailand 001-800-886-0010
Fax 886-2-2378-6808
Email tiasia@ti.com
ti-china@ti.com
Internet support.ti.com/sc/pic/asia.htm

Important Notice: The products and services of Texas Instruments Incorporated and its subsidiaries described herein are sold subject to TI's standard terms and conditions of sale. Customers are advised to obtain the most current and complete information about TI products and services before placing orders. TI assumes no liability for applications assistance, customer's applications or product designs, software performance, or infringement of patents. The publication of information regarding any other company's products or services does not constitute TI's approval, warranty or endorsement thereof.

A010505

Technology for Innovators, the black/red banner and TMS320C2000 are trademarks of Texas Instruments. ARM7 is a trademark and ARM, ARM7TDMI and Thumb are registered trademarks of ARM Holdings plc. All other trademarks are the property of their respective owners.