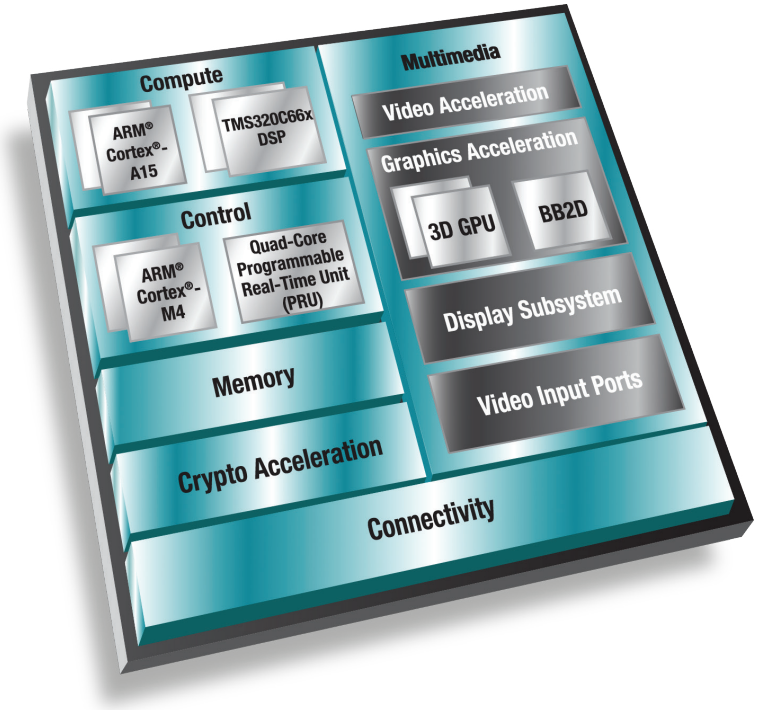
Sitara™ AM57x processor with dual ARM® Cortex®-A15 cores

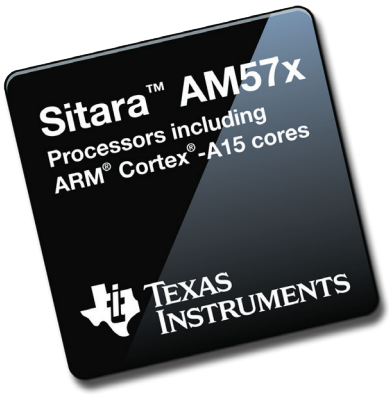
Texas Instruments

In today's industrial automation market, consumers are seeing an evolution that requires new technology featuring amplified performance and capabilities. The factory automation floor is rapidly advancing to become more user friendly with the incorporation of elements like user interfaces that are increasingly similar to those we use in our everyday lives and video competencies that grant the ability to view machines running on the opposite side of factories. This shift necessitates new processors that afford industrial system developers the capacity to successfully address these ever-evolving challenges. With applications ranging from programmable logic controllers (PLCs) and industrial computers to human machine interface (HMI), industrial peripherals and factory communication, automation systems require cutting-edge technologies to meet stringent customer requirements for high reliability in mission-critical environments.

Texas Instruments Incorporated (TI) has a strategic commitment to the factory automation industry, ranging from an extensive, reliable solution portfolio to a long product life supply as well as a strong local-based support. Industrial automation applications have been implemented using a variety of external components making yesterday's solutions very complex, expensive and resistant to evolution even though industry standards are changing.

AM57x block diagram





Meeting the need for high performance

In industrial HMI and PLC systems, there is an increasing trend towards achieving x86-level performance in fanless enclosures and smaller form factors. At the same time, communications requirements are ever increasing for these systems, as is the need for intuitive user interface and high-performance graphics in HMI systems. Texas Instruments is committed to making development easier for customers with its scalable ARM® processor portfolio that ranges from low-power microcontrollers (MCUs) to powerful multicore processors. With the introduction of the Sitara™ AM57x processors, we are excited to expand our portfolio beyond the currently available ARM9™, Cortex®-A8 and Cortex-A9 to include single- and dual-core, pin-compatible, ARM Cortex-A15-based solutions. With this product line expansion, the

Sitara™ Processor Family

Spanning Cortex®-A8 to dual-core Cortex-A15

	AM335x	AM437x	AM57x
Cores	Cortex-A8 up to 1GHz	Cortex-A9 up to 1GHz	Dual Cortex-A15 up to 1.5 GHz, dual TMS320C66x DSPs, dual Cortex-M4s SoCs
DMIPs	Up to 2,000	Up to 2,500	Up to 10,500
Multimedia	3D	●	2D, 3D, LCD, 1080p, HDMI
Memory	LPDDR1/DDR2/DDR3	LPDDR1/DDR2/DDR3	DDR3 with ECC
OS	Linux®/Android™/ StarterWare/RTOS	Linux/Android/ StarterWare/RTOS	Linux/Android/ StarterWare/RTOS
Key features	PRU-ICSS, Cryptography, Touchscreen Controller	2× PRU-ICSS, Display Subsystem, QSPI, GPIO, PWM, GbE 2-port	2× PRU-ICSS, Multimedia Acceleration, Display Subsystem, QSPI, PCIe, GPIO, PWM, GbE 2-port

AM57x processors are the highest performance Sitara solutions available with integrated communications and high-graphics capabilities.

The Sitara™ AM57x processors from Texas Instruments, include ARM Cortex-A15 cores and hardware accelerators for multimedia, allowing customers to create fluid, high-resolution HMI interface products. The capabilities of the highest performance Sitara processor to date are unrivaled with 10,500 DMIPs and each Cortex-A15 core running at up to 1.5 GHz. The Sitara AM57x processors integrate key industrial peripherals such as dual Programmable Real Time Unit (PRU) Subsystems including a total of four 32-bit, 200-MHz execution units for real-time processing or industrial protocol support.

The pin-to-pin and software-compatible devices in this generation of processors, along with industrial hardware development tools, software and analog components, provide a total industrial system solution. Using this solution, developers can get to market faster with their industrial automation designs, including input/output (I/O) devices, human machine interfaces and programmable logic controllers.

Robust software eases development

Processor SDK is a unified software platform for TI embedded processors providing easy setup and fast out-of-the-box access to benchmarks and demos. All releases of Processor SDK are consistent across TI's broad portfolio, allowing developers to seamlessly reuse and migrate software across devices. Developing scalable platform solutions has never been easier than with the Processor SDK and TI's embedded processor solutions. Processor SDK supports both Linux® and TI-RTOS operating systems.

Getting to market faster with system solutions

TI offers the ability to complete an entire industrial system design with TI analog ICs, including industrial Ethernet and isolated CAN transceivers, motor drivers, temperature sensors and power management devices, plus wireless connectivity and microcontroller options to complement the AM57x processors. With easy-to-use development platforms and ecosystem software support, Texas Instruments offers the entire industrial automation solution.

Additional information

For more information including datasheets, reference designs and benchmark information, please visit **www.ti.com/am57x**.

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