

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



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

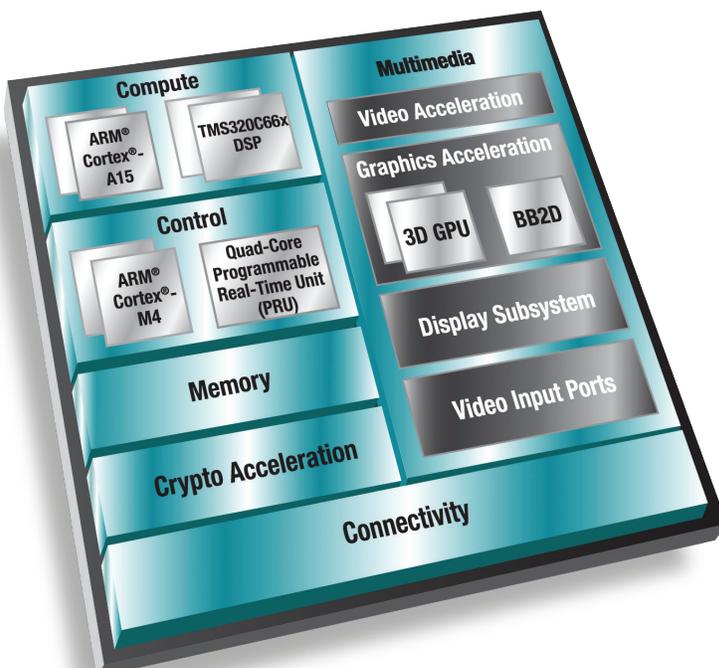


solutions very complex, expensive and resistant to evolution even though industry standards are changing.

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

AM57x block diagram



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.

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.

The platform bar and Sitara are trademarks of Texas Instruments. All other trademarks are the property of their respective owners.

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, enhancements, improvements and other changes to its semiconductor products and services per JESD46, latest issue, and to discontinue any product or service per JESD48, latest issue. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All semiconductor products (also referred to herein as "components") are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its components to the specifications applicable at the time of sale, in accordance with the warranty in TI's terms and conditions of sale of semiconductor products. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by applicable law, testing of all parameters of each component is not necessarily performed.

TI assumes no liability for applications assistance or the design of Buyers' products. Buyers are responsible for their products and applications using TI components. To minimize the risks associated with Buyers' products and applications, Buyers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI components or services are used. Information published by TI regarding third-party products or services does not constitute a license to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of significant portions of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI components or services with statements different from or beyond the parameters stated by TI for that component or service voids all express and any implied warranties for the associated TI component or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of TI components in its applications, notwithstanding any applications-related information or support that may be provided by TI. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards which anticipate dangerous consequences of failures, monitor failures and their consequences, lessen the likelihood of failures that might cause harm and take appropriate remedial actions. Buyer will fully indemnify TI and its representatives against any damages arising out of the use of any TI components in safety-critical applications.

In some cases, TI components may be promoted specifically to facilitate safety-related applications. With such components, TI's goal is to help enable customers to design and create their own end-product solutions that meet applicable functional safety standards and requirements. Nonetheless, such components are subject to these terms.

No TI components are authorized for use in FDA Class III (or similar life-critical medical equipment) unless authorized officers of the parties have executed a special agreement specifically governing such use.

Only those TI components which TI has specifically designated as military grade or "enhanced plastic" are designed and intended for use in military/aerospace applications or environments. Buyer acknowledges and agrees that any military or aerospace use of TI components which have **not** been so designated is solely at the Buyer's risk, and that Buyer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI has specifically designated certain components as meeting ISO/TS16949 requirements, mainly for automotive use. In any case of use of non-designated products, TI will not be responsible for any failure to meet ISO/TS16949.

Products

Audio	www.ti.com/audio
Amplifiers	amplifier.ti.com
Data Converters	dataconverter.ti.com
DLP® Products	www.dlp.com
DSP	dsp.ti.com
Clocks and Timers	www.ti.com/clocks
Interface	interface.ti.com
Logic	logic.ti.com
Power Mgmt	power.ti.com
Microcontrollers	microcontroller.ti.com
RFID	www.ti-rfid.com
OMAP Applications Processors	www.ti.com/omap
Wireless Connectivity	www.ti.com/wirelessconnectivity

Applications

Automotive and Transportation	www.ti.com/automotive
Communications and Telecom	www.ti.com/communications
Computers and Peripherals	www.ti.com/computers
Consumer Electronics	www.ti.com/consumer-apps
Energy and Lighting	www.ti.com/energy
Industrial	www.ti.com/industrial
Medical	www.ti.com/medical
Security	www.ti.com/security
Space, Avionics and Defense	www.ti.com/space-avionics-defense
Video and Imaging	www.ti.com/video

TI E2E Community

e2e.ti.com