



SolidRun's TI AM64x Based SOM Fast Tracks Industrial IoT, Robotics and Mission Critical Communications Hardware Development

Featuring 2 Cortex A53 Cores, 4x Cortex R5F Cores and a Cortex M4F Core, This SOM is ideal for an array of low power and secure industrial IoT applications

TEL AVIV, November 29, 2021 – SolidRun, a leading developer and manufacturer of high-performance System on Module (SOM) solutions, Single Board Computers (SBC) and network edge solutions, today announces its new SOM powered by the AM64x Sitara from Texas Instruments. Featuring best-in-class real-time and low-latency processing, this new SOM targets industrial IoT and industrial machinery applications.

“We designed the AM64x family of processors to meet the complex data and application processing needs of modern industrial IoT and network applications, as well as provide precision motor and servo control for safe operation of machinery and robots,” said XXX at TI. “SolidRun’s new SOM helps customers drastically reduce the engineering time to create new industrial applications, such as production line machinery, manufacturing robots, industrial equipment and more, that benefit from our SoC’s high-performance industrial control, connectivity and processing capabilities.”

The AM64x SOM is aimed at applications that require a combination of precise real-time processing and application processing, and comes equipped with two Cortex A53 cores for OS-level and applications processing, up to four Cortex R5F cores for real-time computing, servo control and functional safety, and an isolated Cortex M4 MCU channel for error monitoring. This SOM also packs a ton of innovative features that make it excellent for mission-critical applications, such as an integrated lockstep MCU subsystem and diagnostic libraries, inline ECC, an isolated Cortex-M4 core that can work independently from the SoC, secure boot with hardware-enforced root of trust and more.

Architected using TI’s highly efficient 16nm FinFET production technology, these new TI AM64x Sitara-based SOMs consume little power, support fanless design, and are robust to extreme environments ranging from -40°C to 85°C. Measuring in at just 47 x 30mm in size, these SOMs pack far more than the AM64x processor. Each SOM is equipped with onboard eMMC storage, a sub-1GHz MCU for radio communication, and up to three gigabit Ethernet physical layer transceivers.

To maximize the processor’s multi-protocol industrial ethernet support, the SOM offers two built-in Gigabit industrial subsystems (PRU-CSSG), that support industrial ethernet protocols such as Profinet IRT, Profinet RT, EtherNet/IP, EtherCAT and Time-Sensitive Networking (TSN). Paired with high-speed PCIe, USB 3.0 and integrated ethernet switch interfaces, as well as general industrial connectivity options like UART, I2C, CAN and ADC, the SOM is the ideal foundation for industrial communications systems, factory

automation, industrial robot and machinery control, industrial gateways, M2M communication and much more.

The AM64x SOM family features multiple ordering options for single to dual-core A53 and single to quad-core R5F options based on the TI AM6411, AM6412, AM6421, AM6441 and AM6442 processors. Additionally, SOMs can be optioned with TI's CC1312 multiprotocol and multiband SimpleLink wireless MCU for sub 1GHz communication. Supporting 6LoWPAN, MIOTY and Wi-SUN protocols allows the SOM to conduct advanced sensing and metering of sensors, which is especially useful for HVAC, smart buildings, advanced medical systems, smart meters, and more.

“Industrial automation, robots, smart buildings and more all require powerful applications processing capabilities as well as robust, real-time communications for precise machine control,” said Dr. Atai Ziv, CEO at SolidRun. “Until now, no single solution could do it all. Our family of AM64x-based SOMs streamlines hardware specifications and enables developers to quickly design compact, precise, and connected edge devices and industrial network solutions for next-generation industrial IoT and automation.”

SolidRun also offers Hummingboard-T AM64X Base and Hummingboard-T AM64X Pro carrier boards that are perfect for prototyping with the AM64X Sitara SOM. These new Hummingboard carriers support up to 1GB of DDR4, 8GB of eMMC flash memory and features expansion and communications options, including:

- GPIO header
- I/Os for USB 3.0, CAN-FD and RS485/RS232,
- up to three gigabit Ethernet ports with two featuring PRU ICSSG,
- optional Cat 4 LTE with SIM slot
- optional CC1312 SimpleLink 1 GHz wireless MCU

The TI AM64x S SOMs and Hummingboard carrier boards are available through SolidRun. To help expedite the development process, customers will be provided with an optimized board support package, stable long-term support for select software distributions, access to SolidRun's support tools and sample source code.

For more information about the TI AM64x-Sitara-based SOM from SolidRun, please visit <https://www.solid-run.com/embedded-industrial-iot/ti-am64x-sitara-family/am64x-sitara-som/#software>. For more information about SolidRun, please visit www.solid-run.com.

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About SolidRun

SolidRun is a global leading developer of embedded systems and network solutions, focused on a wide range of energy-efficient, powerful, and flexible products. Our innovative compact embedded solutions are based on ARM and x86 architecture and offer a variety of platforms including SOMs (System-on-Module), SBCs (Single Board Computer) and industrial mini-PCs.

SolidRun offers a one-stop-shop for developers and OEMs, providing a complete service from hardware customization to software support and even product branding and enclosure design. With a mission to simplify application development while overcoming deployment challenges, SolidRun proudly provides customers faster time-to-market and lower costs.

SolidRun's TI AM64X Sitara SOM specifications include:

	Sitara AM6442R SOM	Sitara AM6442A SOM
CPU Details	TI Sitara AM6442 2 x Cortex A53 4 x Cortex R5 1 x Cortex M4	TI Sitara AM6442 2 x Cortex A53 4 x Cortex R5 1 x Cortex M4
CPU Speed	1GHz Industrial	1GHz Industrial
RAM	1GB DDR4 with inline ECC	1GB DDR4 with inline ECC
Internal Storage	8GB eMMC	8GB eMMC Optional QSPI
External Storage Support	NOR-Flash SD PCIe-SSD	NOR-Flash SD PCIe-SSD
Ethernet	1 x 10/100/1000 Mbps (PRU ICSSG, Supporting; TSN, EtherCAT, PROFINET, EtherNET/IP)	1 x 10/100/1000 Mbps 2 x 10/100/1000 Mbps (PRU ICSSG, Supporting; TSN, EtherCAT, PROFINET, EtherNET/IP)
Wireless		Optional CC1312 SimpleLink sub 1GHz wireless MCU
USB 3.0	1	1
PCIe	1 (Gen 2.0)	1 (Gen 2.0)
I2C	4	4
SPI	✓	✓
UART	Up to 9	
GPIO	✓	✓
PWM	✓	✓
CAN	2	2
SD/MMC	2	2
JTAG	✓	✓
OS Support	Linux	Linux
Size	47 x 30 mm	47 x 30 mm
Interface	3 x Hirose DF40 connectors	3 x Hirose DF40 connectors
Main Voltage	5V	5V
I/O Voltage	3.3V	3.3V
Temperature	Industrial: -40°C to 85°C	Industrial: -40°C to 85°C

Humidity	Humidity (non-condensing): 10% – 90%	Humidity (non-condensing): 10% – 90%
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Carrier board specifications include:

	HUMMINGBOARD-T AM64X BASE	HUMMINGBOARD-T AM64X PRO
I/Os	1 x USB 3.0 2 x CAN-FD 2 x RS485/RS232	1 x USB 3.0 2 x CAN-FD 2 x RS485/RS232
Networking	1 x 10/100/1000 Mbps (PRU ICSSG, Supporting ; TSN, EtherCAT, PROFINET, EtherNET/IP) 1 x Optional Cat 4 LTE with SIM Holder	1 x 10/100/1000 Mbps 2 x 10/100/1000 Mbps (PRU ICSSG, Supporting ; TSN, EtherCAT, PROFINET, EtherNET/IP) 1 x Optional Cat 4 LTE with SIM Holder 1 x CC1312 SimpleLink 1 GHz wireless MCU (Optional)
Processor	TI Sitara AM6424 Arm Cortex A53 Dual core @ 1GHz + 4 x Cortex R5 @ 800MHz + 1 x Cortex M4 @ 400MHz	TI Sitara AM6424 Arm Cortex A53 Dual core @ 1GHz + 4 x Cortex R5 @ 800MHz + 1 x Cortex M4 @ 400MHz
Memory & Storage	1GB DDR4 8GB eMMC	1GB DDR4 8GB eMMC
Misc.	GPIO header Indication LEDs User Push Buttons RTC with battery backup	GPIO header Indication LEDs User Push Buttons RTC with battery backup
Development and Debug interfaces	Console port (internal)	Console port (internal)
Power	9V-36V Optional battery charger	9V-36V Optional 802.3af POE PD Optional battery charger
Expansion card I/Os	M.2	M.2
Temperature	Temperature: -40°C to 85°C	Temperature: -40°C to 85°C
Dimensions	150 x 85 x 40mm	150 x 85 x 40mm
Enclosure	None	None