

Introducing the AM57x Sitara Processors from Texas Instruments

*ARM Cortex-A15 solutions for automation,
HMI, vision, analytics, and other industrial
and high-performance applications.*

Embedded Processing
Sitara ARM Processors



AM57x Sitara Solutions: Top-of-the-line Performance and Integration



Single/Dual 1.5GHz Cortex-A15s driving up to twice the DMIPs (10,500) of the AM437x (Cortex-A9) family

Layout-compatible solutions sharing key core components including C66x DSPs, ARM-M4s, PCI Express, USB3.0, SATA, GbEnet, video decode, and a quad-core Programmable Real-time Unit (PRU) subsystem enables maximum application flexibility and task-specific processing

TI E2E™ Community
engineer to engineer, solving problems

Low-cost, portfolio-common development options with TI's Processor SDK including LTS Linux and TI RTOS with other OS options from the ecosystem.

Where Does AM57x Fit?

Layout Compatible

Quad Core

AM5K2E04 *4x A15*
 4x A15, 1.4 GHz
 Network Accelerator
 PCIe, USB3, GbE Switch, 10GbE
 27x27mm

Dual Core

AM572x *2x A15*
 2x A15, 1.5 GHz
 2x C66x, 750 MHz
 HD, 2x SGX, 2D, USB3
 23x23mm

AM5K2E02 *2x A15*
 2x A15, 1.4 GHz
 Network Accelerator
 PCIe, USB3, GbE Switch
 27x27mm

Single Core

AM570x *A15*
 1x A15, 1 GHz
 1x C66x, 500 MHz
 HD, SGX, 2D, USB3
 17x17mm

AM571x *A15*
 1x A15, 1.5 GHz
 1x C66x, 750 MHz
 HD, SGX, 2D, USB3
 23x23mm

AM335x *A8*
 1x A8, 1 GHz
 GbE Switch, SGX
 16 bit DDR3
 13x13, 15x15mm

AM437x *A9*
 1x A9, 1 GHz
 32 bit DDR3, QSPI
 1GbE Switch, SGX
 17x17mm

| | | | |
|--|-------------|--|----------|
| | 1080p Video | | PRU-ICSS |
| | Display | | DSP |
| | 3D Graphics | | Security |
| | Ethernet | | |

AM57x Product Family

| | ARM Cortex-A15 (MHz) | C66x DSP (MHz) | ARM Cortex-M4 (MHz) | Graphics | Video Acceleration | Display Sub-system | PRU-ICSS | Package Size | Pkg Designator |
|--|--|-------------------|---------------------|-------------------|--------------------|--------------------|------------------------|-----------------------|----------------|
| | AM5728  | 1.5GHz 1.5GHz | 750 MHz 750 MHz | 213 MHz 213 MHz | 3D 3D 2D | 1080p | Yes | PRU-ICSS* (Quad Core) | 23x23 |
| AM5726  | 1.5GHz 1.5GHz | 750 MHz 750 MHz | 213 MHz 213 MHz | | | | PRU-ICSS* (Quad Core) | 23x23 | ABC |
| AM5718  | 1.5GHz | 750 MHz | 213 MHz 213 MHz | 3D 2D | 1080p | Yes | PRU-ICSS* (Quad Core) | 23x23 | ABC |
| AM5716  | 1.5GHz | 750 MHz | 213 MHz 213 MHz | | | | PRU-ICSSU* (Quad Core) | 23x23 | ABC |
| AM5716  | 1.5GHz/ 500 MHz | 750/500 MHz | 213 MHz 213 MHz | | | | PRU-ICSS* (Quad Core) | 23x23 | ABC |
| AM5708  | 1GHz | 500 MHz | 213 MHz 213 MHz | 3D 2D | 1080p | Yes | PRU-ICSSU* (Quad Core) | 17x17 | CBD |
| AM5706  | 1GHz/ 500 MHz | 500 MHz | 213 MHz 213 MHz | | | | PRU-ICSS* (Quad Core) | 17x17 | CBD |

Pin Compatible

Software Compatible

PRU-ICSS can be used for industrial communication protocols such as Profibus, Profinet RT/IRT, EtherCAT, POWERLINK, Ethernet/IP, and more.**

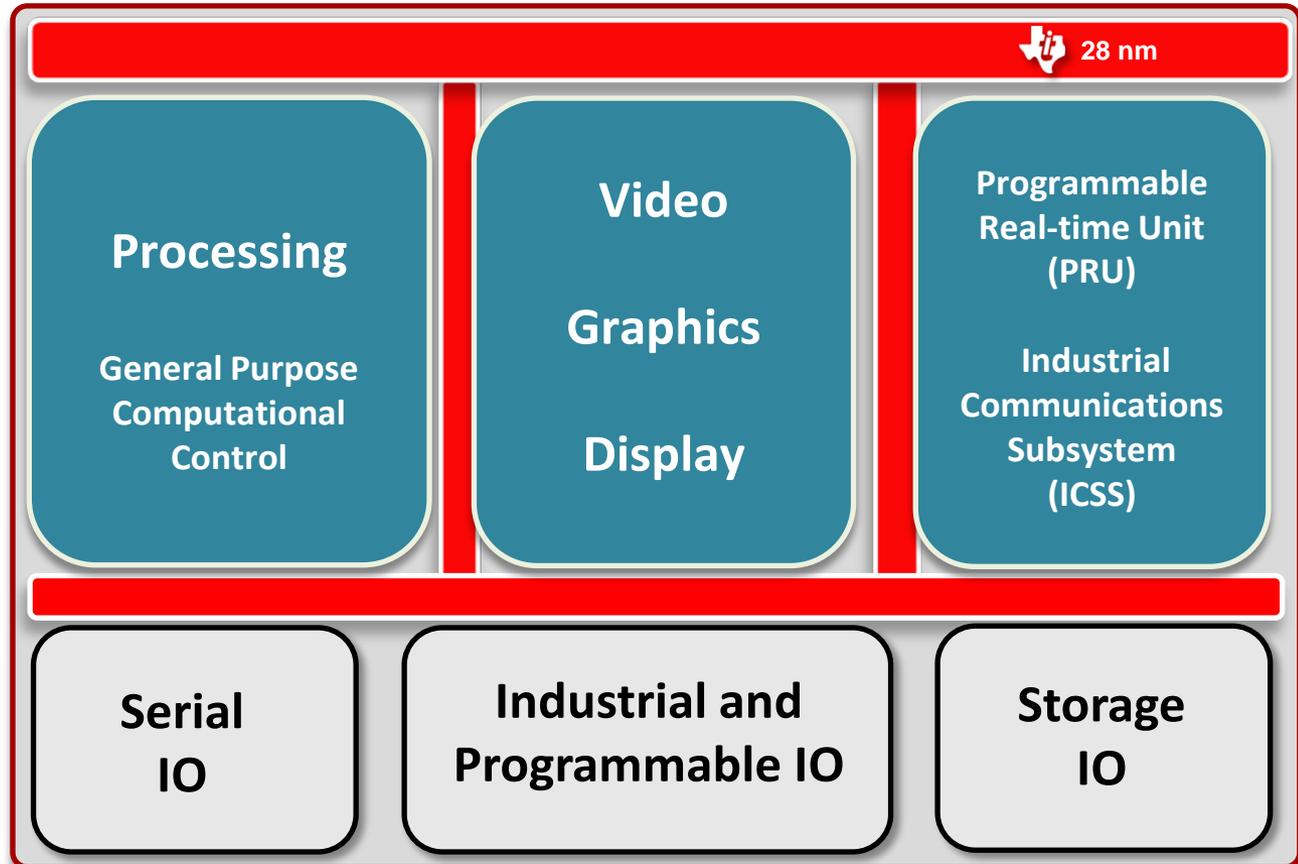
*PRU-ICSS is configured into two dual-core subsystems.

**Support for premium protocols such as EtherCAT or POWERLINK requires ordering a specific part.

Most Integrated Sitara Processor Yet

- Multiple dedicated elements provide ability to partition system tasks to most efficient location.
- Latest 28nm low-power process provides optimal blend of performance, power and cost.

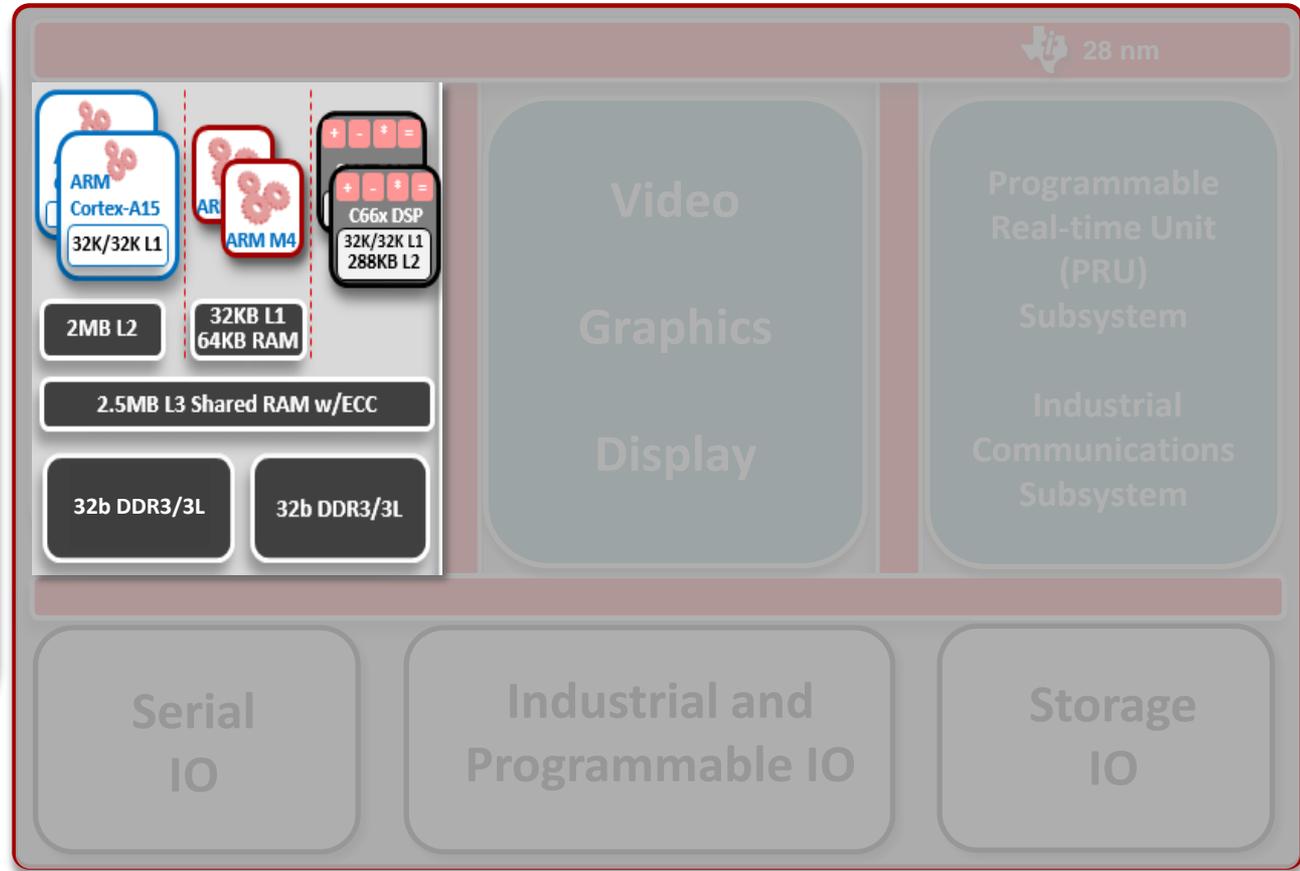
IO set allows extensive flexibility to work in many different applications.



For more information: www.ti.com/lit/spruhz6

Highest Performance Sitara Processor Available

- Up to 10,500 DMIPs of general purpose ARM performance with options for dual or single ARM Cortex-A15
- Up to 48 GMACs of DSP computational power with options for dual or single, fixed and floating point C66x DSPs
- Control your system and applications with dual Cortex-M4 cores

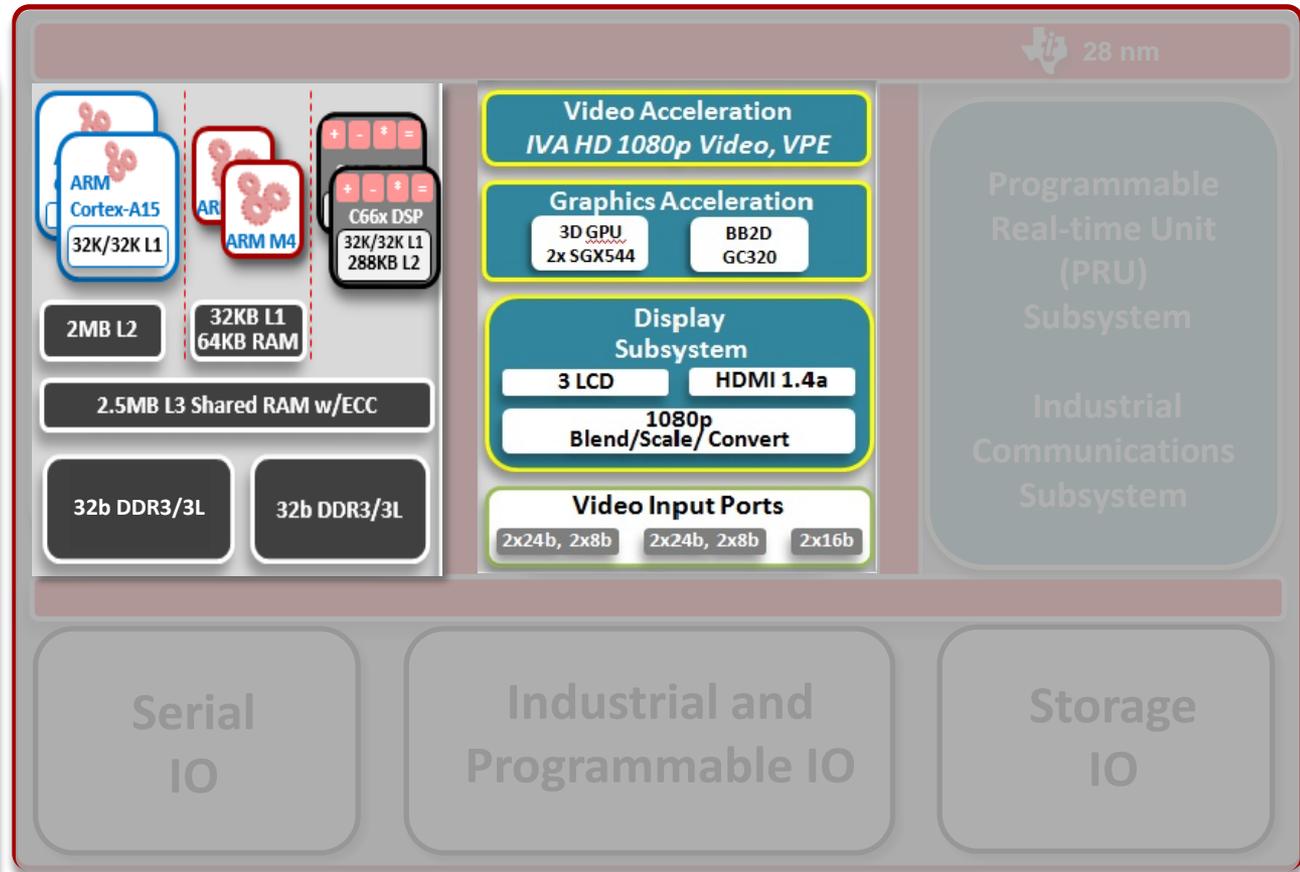


AM572x shown

For more information: www.ti.com/lit/spruhz6

First Sitara Processor with Video Processing

- Process up to 1080p60 video with dedicated video acceleration engine.
- Build advanced, natural user interfaces with hardware-accelerated 3D and 2D graphics.
- Interact how your users want with flexibility in display capabilities via HDMI and LCD support, as well as hardware scaling and converting.
- Capture or comprehend the world around you with multiple video inputs that can be recorded or analyzed.

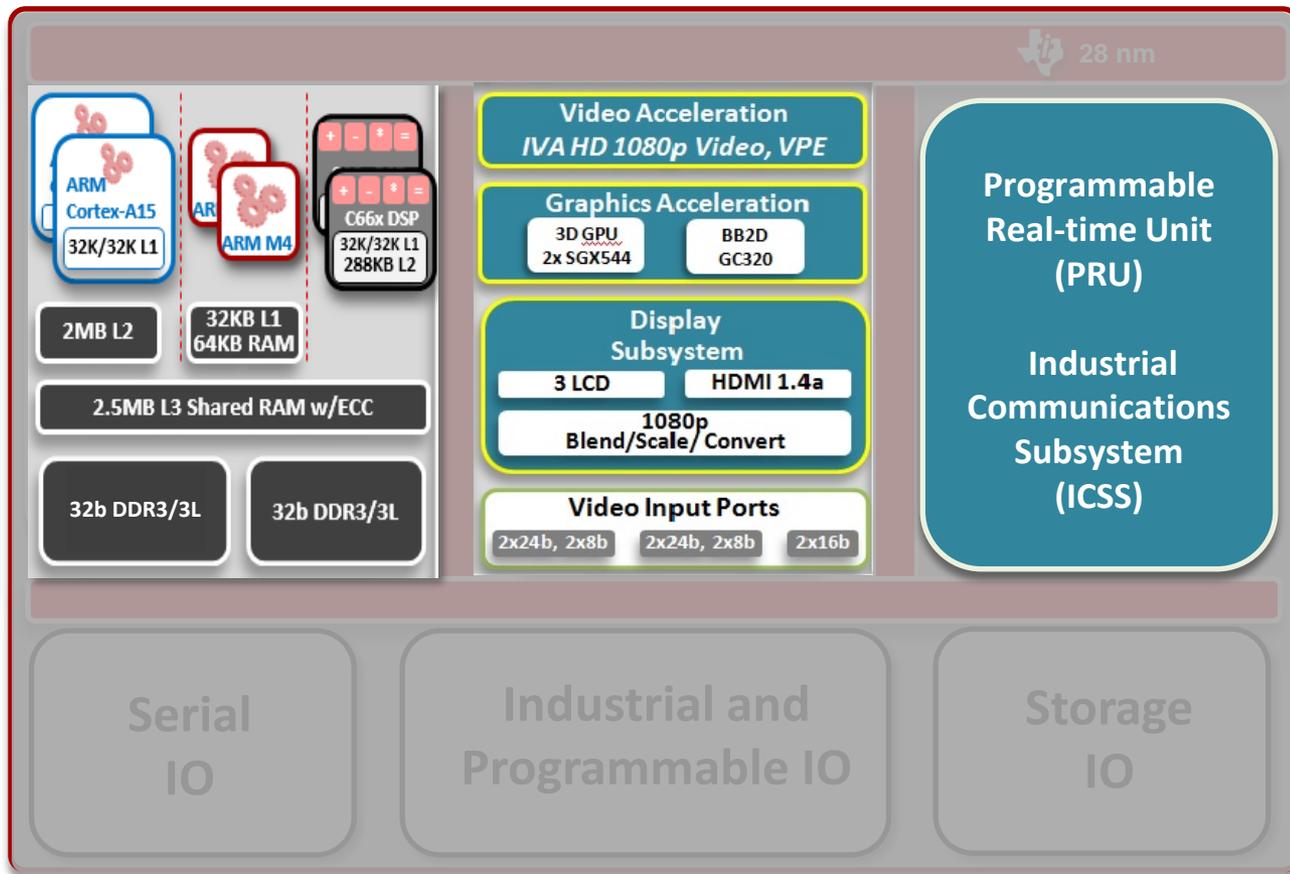


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For more information: www.ti.com/lit/spruhz6

Most Advanced PRU Subsystem to Date

- Quad 32-bit RISC cores
- Programmable low-latency, highly-deterministic module along with direct access to pins allows offloading a variety of tasks from other system resources.
- Allows execution of multiple industrial communication protocols

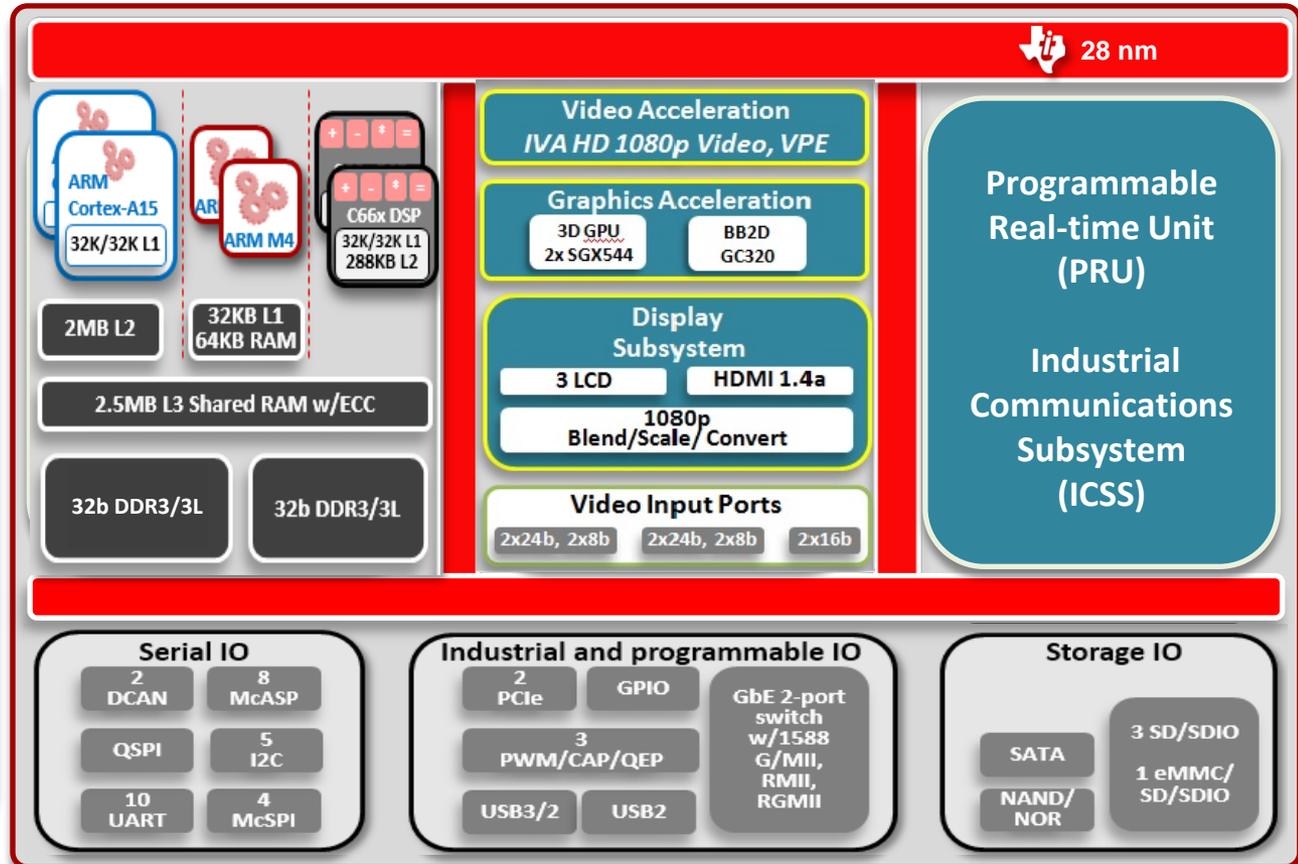


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For more information: <http://processors.wiki.ti.com/index.php/PRU-ICSS>

Most High-speed Peripherals of any Sitara Processor

- Serial IO provide a wide variety of serial interfaces to connecting to multiple peripherals and system components.
- Industrial and programmable IO provide multiple high-speed interfaces including USB3.0, PCIe, Gbit Ethernet switching, a.o.
- Storage IO support data-access solutions such as SATA, eMMC, and SD cards.



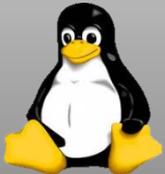
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For more information: www.ti.com/lit/spruhz6

AM57x Planned Software Support

Processor SDK

TI Owned



- Complete Linux software development kit including real time support*
- Based on mainline Linux kernel (2014 LTS)**
- Sitara user experience

* RT Linux 2H15, (support for PREEMPT RT limited to IDK)

**Customers will need to transition to 2015 LTS Processor SDK for production - 4Q15

Diagnostic CODE

- Hardware validation tool
- Linux based for GP EVM
- No-OS based for IDK

TI-RTOS

- Focus on industrial applications and IDK support
- Broadest support OS for industrial communications



- Android Lollipop
- Supplied directly by Adeneo

- Complete Windows Compact Embedded Support (WEC2013)
- Customization & Services



- Broad support for numerous RTOS including QNX, VXworks and Integrity



- Additional DSP, video, and graphics support
- Integration & customization



*Not all peripherals and accelerators supported on all platforms
Not all software will be available on all hardware platforms
Not all partners shown*

AM57x Development Tools

| AM572x Evaluation Module | | AM572x Industrial Development Kit |
|---|-----------|---|
| Dual-ARM Cortex-A15: 1.5GHz each | Processor | Dual-ARM Cortex-A15: 1.5GHz each |
| 2GB DDR3L 4GB eMMC uSD | Memory | 1GB DDR3L 32MB QSPI / 16GB eMMC uSD |
| Yes, Capacitive Touch Size: 7", 800 x 480 | Display | Yes, Capacitive Touch Size: 10", 1080p |
| PCIe, SATA, HDMI, Camera & Peripheral expansion | Features | Full ICSS access (x4), On-board ADC, ECC support on DDR, HDMI, ICSS & Camera expansion |
| Linux, Android*, TI-RTOS** | Software | RT Linux, TI-RTOS |
| Similar versions of each board will be made available for AM571x | | |

* Supplied via third party; Does not ship with kit

** Available following initial release

For More Information

- Overview for Sitara Processors: <http://www.ti.com/sitara>
- [AM572x Technical Reference Manual](#)
- [AM571x Technical Reference Manual](#)
- [AM57x Sitara Processors Training Series](#)
- For questions about this training, refer to the E2E Sitara Processors Forum: https://e2e.ti.com/support/arm/sitara_arm