

Industry 4.0 Spelled Backward Makes No Sense – and Neither Does the Fact That You Haven’t Heard of TI’s Newest Processor Yet



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The new, highly integrated Sitara™ AM6x processor family provides industrial-grade reliability and features quad and dual Arm® Cortex®-A53 core variants that are built to meet the rapidly evolving needs of Industry 4.0 applications in factory automation and grid infrastructure, like those shown in [Figure 1](#). By including an on-chip lockstep microcontroller subsystem and secure boot capabilities, you can use AM6x processors to create more dependable, secure and functional safety-certifiable products while reducing system-level complexity in applications like programmable logic controllers (PLCs), human machine interfaces (HMIs), industrial robot controllers and multi-axis motor drives. Extensive use of error-correcting-code (ECC) memory protection and the ability to operate for up to 100,000 power-on hours at a 105°C junction temperature enable AM6x processors to function in applications requiring high reliability.

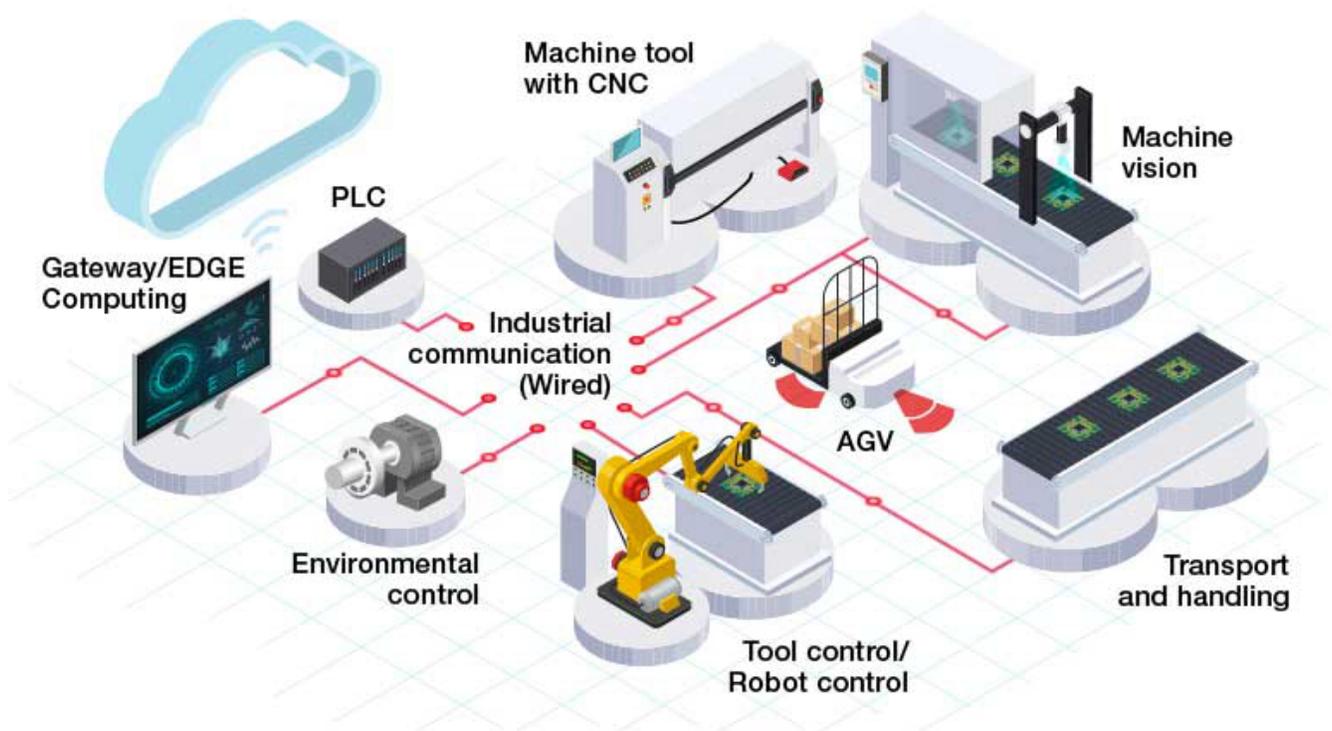


Figure 1. Examples of Industry 4.0 applications

Time-Sensitive Networking (TSN) has generated a lot of buzz in the factory automation and automotive industries for the past couple of years. Recently, we’ve seen actual live demos of TSN with a few of the standards running, including a PROFINET over TSN demo from PROFIBUS and PROFINET International that used the programmable real-time unit subsystem-industrial communication subsystem (PRU-ICSS) in TI’s AM57x processors to run 100-Mb TSN switches.



Download our white paper on using Sitara AM6x processors for servo drives [Utilizing Sitara™ processors for Industry 4.0 servo drives](#).

Although 100-Mb TSN is impressive, the real benefit of TSN comes when you're able to make use of the full gigabit bandwidth of Ethernet, which is where the AM6x really shines. The AM6x features the new and improved PRU-ICSS-Gb, which supports gigabit Ethernet speeds including gigabit TSN. You'll be able to start your TSN implementation now – even though the standards aren't fully defined – because the TSN switch on the PRU-ICSS-Gb is implemented through firmware, so support for new standards can occur later through firmware updates. Another important point is that there are three instances of the backwards-compatible PRU-ICSS-Gb in the AM6x, so it can function as a bridge between TSN and standard Ethernet protocols.

The AM6x is truly an industrial-grade processor. You can find out more about its features in a series of white papers, application notes, videos and blog posts linked below. You'll also be able to check out the AM6x's gigabit TSN capabilities firsthand in the TI booth at Electronica 2018.

Additional Resources:

- Get more information about the new [Sitara AM6x processor](#) family.
- Download our white papers on [TSN](#), [industrial controls](#) and [protection relays](#) to start designing today.
- Start developing with AM65x processors using the [AM65x EVM](#), [AM65x IDK](#) and [Processor SDK](#).

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