

New Product Update

Discover TI's AM625 System in
Package

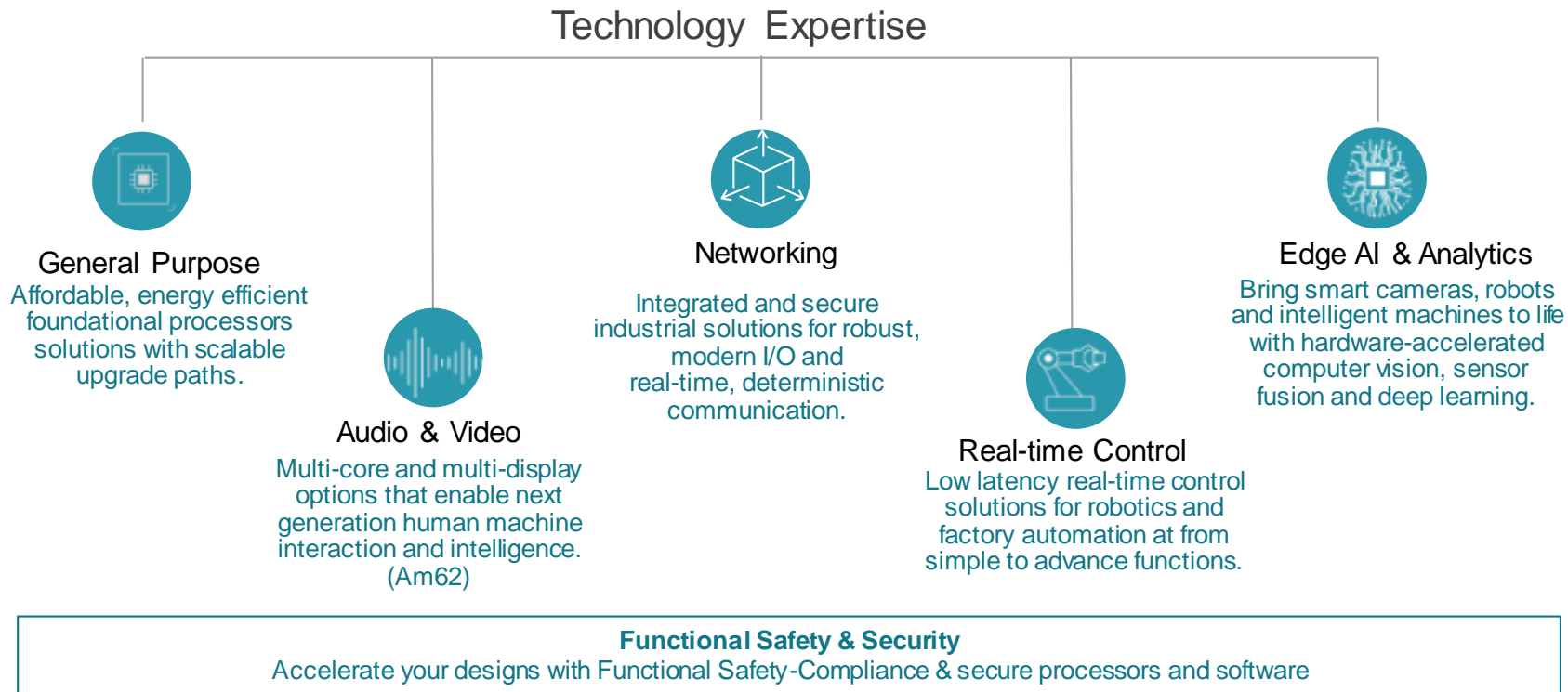
Mahir Kaheri

Product marketing engineer

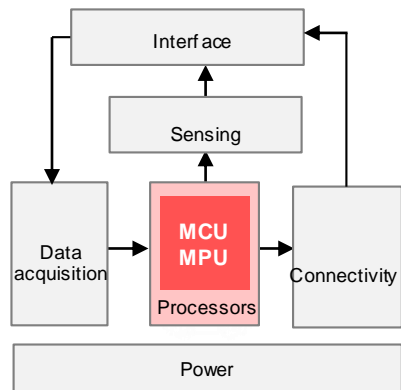
Agenda

- TI Processors Introduction
- System in Package, what is AM625SIP
- Scalable Software and Hardware with AM625SIP
- Getting started with AM625SIP

TI Processors | differentiated technologies



TI Processors | how we scale your success



From **general-purpose controllers** to **advanced processors** our portfolio of solutions are found at the center of every system.

Portfolio



Broadest ever portfolio, easier to use than ever before. Expanding options with lower cost and general purpose solutions and advance application accelerators

Simpler Tools and Software



Scalable hardware from starter kits to EVMs, with unified software SDK's and available development options for all major operating systems.

Ecosystem & Support



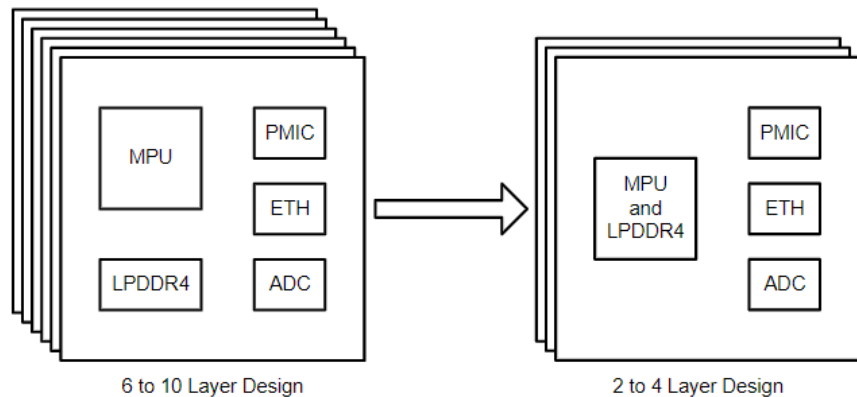
Our expanding ecosystem of curated experts operate on your schedule with robust support and services to get you to production faster.

System in Package

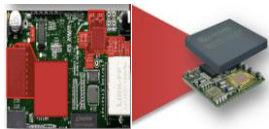
System-in-package | driving innovation through simple system design

TI system-in-package (SIP) processors with integrated LPDDR4 like the upcoming AM625SIP help solve common processor design challenges such as:

- reduce time and resources needed to layout the DDR
- lesser effort on PCB layout, simulation, verification and failure analysis
- optimized size and system BOM
- power consumption saving with low power modes
- suited for compact and high performance products



AM625SIP with Integrated 512 MB LPDDR4



SoC + Memory in a single package

Arm-based 4x A53 AM62x processor + 512 MB LPDDR4 on a single package

Boot your board the first time

PCB layout already done on SIP, reducing faults and errors and getting you to market faster. DDR bring-up/Software efforts reduced greatly



Low Power with Security

Higher performance margin with reduced parasitic. Low power with dedicated power modes & security advantages with in-package DDR



AM625SIP

13x13mm Package

Considerable board space savings and Layer count reduction
Simplify assembly with reduced components



Robustness

Security, quality and E2E technical Support. Simple supply chain management with Memory on a single package

Faster Development

Scalable hardware & software enables faster product development with AM62x platform of processors



AM625SIP | general purpose processor

Fac Auto& Control



Industrial HMI



PLC
Motion control



Ind Machine/PC

Grid Infrastructure



EV charging



Solar Energy



Grid Comm.

Build Automation



Building security



HVAC System



Elevator &
Escalator

AM625SIP great for: fundamental display, data processing, or where communication is required

Medical



Patient Monitor



Medical
Equipment



Home
Healthcare

Ind Transportation



Marine
equipment



Sensor tag
Data logger



Train control &
management

Test Measurement



Diagnostic
equipment



DSO/AWG



Application
specific

AM625SIP enables low power + integrated memory + scalable platform with ease-of-use SW

Payment



Scanner



Currency
counter

Power delivery



Field supervisor
unit



UPS monitor

Wireless Infra.



Appliance



Ip phone



Infinite possibility...

Software with AM625SIP

AM625SIP | A scalable, low power, secured platform

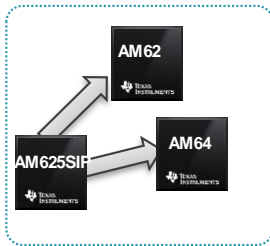
Ease of use Software

100% Software reuse for AM62X family



100% code compatibility
Processor-Linux-SDK

Unified SDK provides easy migration path to MPU



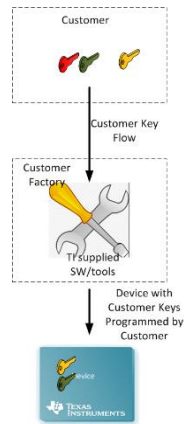
TI devices boot from mainline and fully supported on the community Linux

Easy migration!

Save
maintenance!

Stay reliable!

Secured



✓ Takeover Protection (Integrity)

- Device only runs authentic software.
- Ensure external flash content is not modified.

✓ IP Protection (Confidentiality)

- No copying my code sitting in external flash.
- External contents of flash (code / data) are encrypted.

✓ Anti-cloning Protection

- Prevent cloning of device.
- Bind flash image to given device


Simplify Design

Assembly & BOM

Optimized solution

AM625SIP Dev.TI.com | getting to market faster

EVALUATE with Linux Academy

 **TEXAS INSTRUMENTS**

Linux Academy for AM62X

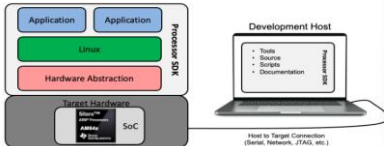
1. Linux System Design

Overview

This Linux Academy module shares a perspective on possible ways to approach Linux System Design, hardware, software, and tools options provided by Texas Instruments to help users quickly and easily foundation. This information is not a list of requirements as such. It is more of recommended roadmap.

A Linux Development System

A typical Linux Embedded System looks similar to the diagram below:



2. Evaluating Linux

Evaluate Develop Port


3. Develop Linux on TI EVM


Evaluate Develop Port


4. Porting Linux to Custom Hardware

Evaluate Develop Port

BUILD Platform with Easy to use Dev Tools

**SysConfig**
Configure pin multiplexing and target software.

**UniFlash**
Load your target program.

**GUI Composer**
Create custom GUIs to interact with programs on your device.


INTEGRATE using Design Academy


AM62 Demos Academy


Add connected human-machine interaction and AI to your design with AM62x processors.

HMI Academy demos

Explore HMI graphics demos created by Texas Instruments and third party hardware and software vendors in the TI ecosystem.


**Industrial HMI**
Demonstrate how to design Q7 based Industrial HMI demo running at 60fps for your display, at full HD resolution. Add USB or CSI camera functionality, with AI to monitor operator.
[Source code](#) | [User guide](#)


**Home automation HMI**
Evaluate creation of home automation HMI on AM62x processor with Thermal Demo. Added connectivity function with infrared and will be display module temperature.
[Source code](#) | [User guide](#)


**Medical HMI Design**
Evaluate graphics performance on AM62 for 2D and 3D rendering of patient data on display. Option to simultaneously view real and 3D rendered view on dual display.
[Learn more](#)

Networking Academy

Explore demos for networking and connectivity created by Texas Instruments and third party hardware and software vendors in the TI ecosystem.


**Connect to cloud with Wi-Fi**
This application demonstrates AM62x hardware with Wi-Fi, using cloud control operating on an AM62x processor connected to an end-point device (e.g. IoT controller) operating on an AM62x processor.
[Code](#) | [User guide](#)


**Connected factory floor with Codeasy**
The EV charging application connects the entire protocol flow of an charging station, charging station and vehicle according to ISO 15118 and supports the rapid deployment of EV charging stations. The hardware leverages Power PMIC based processor module with power management.
[Code](#) | [User guide](#)


**EV charging with ISO15118**
The EV charging application connects the entire protocol flow of an charging station, charging station and vehicle according to ISO 15118 and supports the rapid deployment of EV charging stations. The hardware leverages Power PMIC based processor module with power management.
[Code](#) | [User guide](#)


Analytics Academy


Explore AI solutions created by Texas Instruments and third party hardware and software vendors in the TI ecosystem.


**Q7 EV charging HMI**
Evaluate graphics and display on AM62 using a Q7 based EV charging station HMI that demonstrates implementation of payment system and user interface to display charging status and time.
[Learn more](#)

**Automotive virtual cluster**
This application showcases the display and GPU capabilities of AM62 in automotive cluster display that show speed and RPM values and overlays it with 3D POV display of surrounding activity.
[Learn more](#)

**Story board combo Demo**
This application is an Android based solution that showcases AM62 graphics capabilities for industrial, medical and appliances. The solution showcases smooth GUI performance and high fidelity 3D graphics with OpenGL ES 3.1.
[Learn more](#)

**Two factor identity management for building access**
This gesture controlled HMI application demonstrates use of AI on the camera based sensor with AM62 processor to authenticate user access only face scan and a mechanical PIN. The solution uses dual display and a mechanical PIN. The solution uses dual display and a mechanical PIN.
[Code](#) | [User guide](#)

**Face recognition for building access**
This face recognition and building access application demonstrates AI based object detection and face recognition. The solution uses dual display and a mechanical PIN. The solution uses dual display and a mechanical PIN.
[Learn more](#)

**Video doorbell with binary CNN**
This binary CNN based solution demonstrates optimized AI based object detection in building other solution from high accuracy, real time performance and is optimized for lower powered products.
[Learn more](#)

Sitara MPU enables you to easily design smart, connected applications

AM625SIP design gallery

AM62 and AM625 Design Gallery

Analytics Designs

Explore AI solutions created by Texas Instruments and third party hardware and software vendors in the TI Processors ecosystem.

TEXAS INSTRUMENTS




Gesture controlled HMI

This design shows integration of mmWave radar and camera sensor with AM62 to control a building access HMI with face detection and gestures to unlock a PIN controlled entry.

Coming Soon at Embedded World 2022!!

MULTICORE-WARE




Face recognition for building access

Ready to evaluate and deployable solution for entry access control systems in Building Automation, Retail, Smart Appliances. Highly customized to effectively utilize the AM62 hardware to accurately detect & recognize faces in challenging conditions/environments.

Learn more

PLUSEXAGE



Video doorbell with deep learning

Highly accurate people detection AI solution by Plumexage running on AM62 Processor. The solution is optimized for battery powered products and shows scalable performance that can operate in low lighting and at various distances and backgrounds.

Learn more

Connectivity Designs

Explore demos for networking and connectivity created by Texas Instruments and third party hardware and software vendors in the TI Processors ecosystem.

TEXAS INSTRUMENTS



Connect to cloud with wifi

This wifi application demonstrates AM62 5K hardware that combines WL1837 solution with AM62 Processor to connect to remote access points and cloud using WiFi. The wifi connection to AM62 5K EVM can be used to launch demos on the HW and report status

Hardware | Software | Design guide

TEXAS INSTRUMENTS

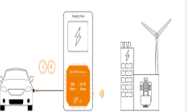


Connected factory floor with Codesys

This demo shows how to build an industrial network with a PLC using Codesys Control operating on an AM62x processor connected to an end point device (ex. I/O controller) operating on an AM64/AM6243x microcontroller.

Hardware | Software | Design guide

TEXAS INSTRUMENTS AND CAR MEDIA LABS



Level2 EVSE with ISO15118 & OCPP

The EV charging application contains the entire protocol flow of smart charging (between charging station and vehicle) according to ISO 15118 and supports the rapid development of L2 AC charging stations. The hardware leverages Phytest AM62 based processor module with greenPHY HW module

Coming Soon at Embedded World 2022!!

HMI Designs

Explore HMI graphics reference created by Texas Instruments and third party hardware and software vendors in the TI ecosystem.

TEXAS INSTRUMENTS



Industrial HMI

Demonstrates how to design QT based Industrial HMI demo running at 60fps for your display at full HD resolution. Design adds camera functionality to monitor operator with AI

Hardware | Software | Design guide

TEXAS INSTRUMENTS



Home Automation HMI: Thermostat Design

Evaluate creation of home automation HMI on AM62x processors with Thermostat Design. Design adds connectivity function with ethernet and will to display location based weather updates and remote configuration

Hardware | Software | Design guide

ALTIA



Health Monitor HMI Design

The health monitor features Altia GUI development software and optimized code generation solutions for TI AM62x. Altia's streamlined workflow enables delivery of custom 2D/3D graphics on production hardware with high, configurable C-rate. Altia DevStudio for TI AM62x leverages all on-chip features for best performance and lowest footprint

Learn more

QT



Smart Warehouse HMI

The Qt Smart Warehouse HMI design on TI AM62x is an interactive multi-screen demo showcasing the capabilities of AM62 in automotive cluster. Design uses

ALTIA



Automotive Virtual Cluster

This application showcases the display and GPU capabilities of AM62 in automotive cluster. Design uses


OSDM SOFTWARE



Storyboard Combo GUI Design

Creating embedded graphics on the TI AM62x just got easier. This demo image built using Crank's Storyboard

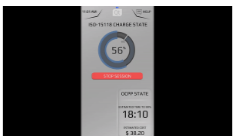
QT



QT Care Patient Monitoring

Qt Care is a stylized 1920x1080 medical UI, replicating a patient monitoring screen often seen in hospitals or clinics. The UI consists of 3D scene, 2D scene, and 2D scene.

QT



EV Charging HMI

Electrical vehicle charging HMI on TI AM62x will allow people to interact with a UI and see digital advertising. The demo also includes 3D scene, 2D scene, and 2D scene.

HW + SW + Design Guide

Analytic Demos

- Gesture recognition
- Face recognition
- People detection

HMI Demos

- Industrial HMI
- Thermostat
- Altia GUI - Health monitor HMI
- QT Smart Warehouse
- Auto Cluster
- Crank's Storyboard GUI
- QT Care - Medical UI.
- EV charging HMI

Connectivity Demos

- WL1837 - WIFI
- CodeSys - PLC
- Level 2 EVES with ISO15118&OCPP

How to get started with AM625SIP

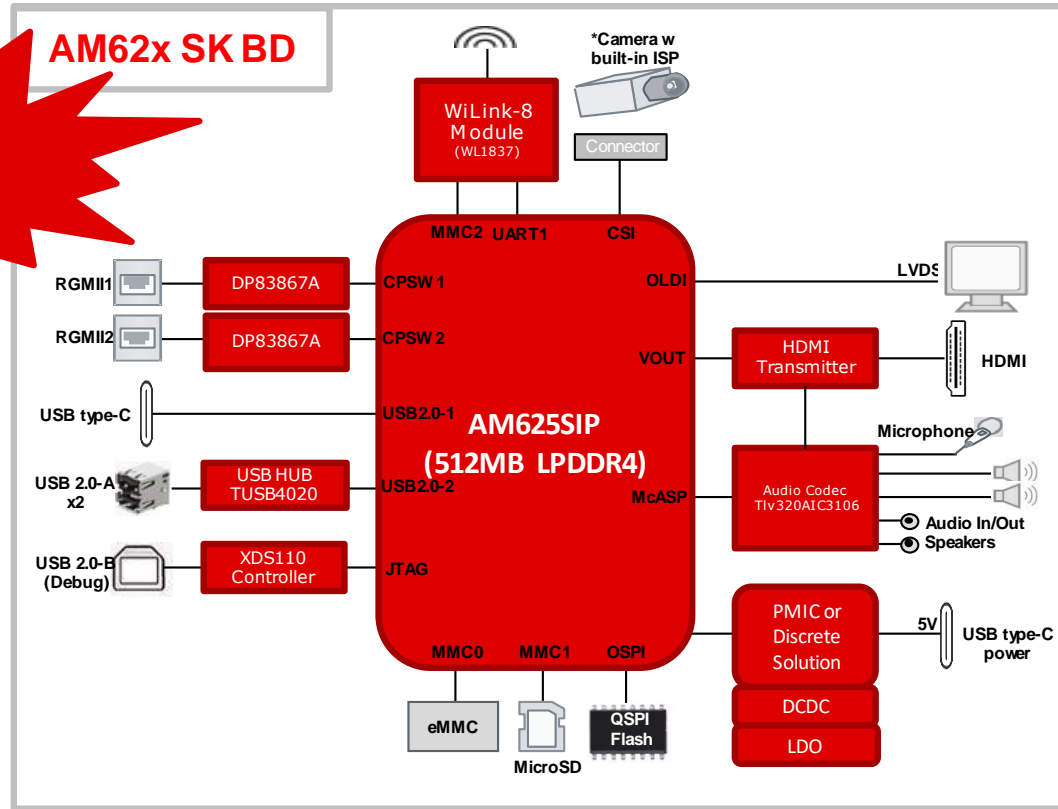
SK-AM625-SIP | Starter Kit EVM

Target Market:

General Linux with WLAN and LVDS/HDMI options for display panels.

Target Applications:

Industrial display applications, medical, Linux Gateways, single-board computers.



*Camera module is not provided onboard

Visit www.ti.com/npu

For more information on the New Product Update
series, calendar and archived recordings



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