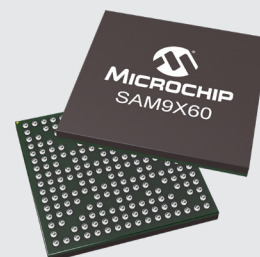


SAM9X60 Series

600 MHz Arm9-based Microprocessor (MPU)
With Integrated Graphics Acceleration and DRAM

Summary

Microchip's SAM9X60 series is an entry-range embedded Microprocessor (MPU) based upon the ARM926EJ-S core running up to 600 MHz with 2D graphics acceleration and dual Ethernet. System-in-Package variants are available with SDRAM or DDR2 in three memory sizes (64 Mb, 512 Mb and 1 Gb) optimized for bare metal, Real-Time Operating System (RTOS) and Linux® implementations. The device integrates powerful peripherals for connectivity and user interface applications. It offers state-of-the-art security functions such as Secure Boot capability with on-chip secure key storage, high-performance crypto accelerators as well as tamper pins.

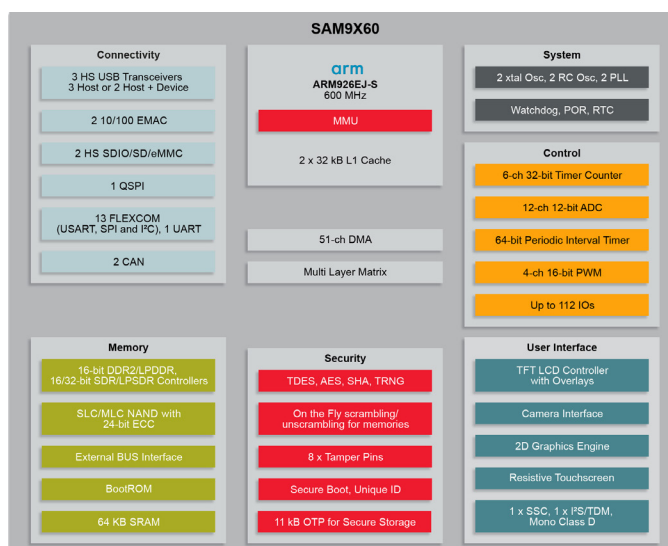


Key Features

- 600 MHz Arm® ARM926EJ-S Core
- System-in-Package with integrated 8 MB SDRAM or 512 Mbit/1 Gbit DDR2 SDRAM
- 3-layer Graphics controller capable of driving 24 bpp color, up to 1024 × 768 resolution
- 2D Graphics Processing Unit (GPU)
- 12-bit camera interface
- Dual CAN
- Dual 10/100 Mbps Ethernet
- Two SD card/eMMC
- Two high-speed USB host + one high-speed host or device
- Thirteen FLEXCOMs (USART, SPI and I²C)
- Secure Boot capability with on-chip Secure Key Storage in One Time Programmable (OTP) Memory
- High-performance crypto accelerators
- Physical protection against tamper
- Optimized for Easy PCB Design and low EMI
- Extended ambient temperature range on selected devices
 - -40°C to +105°C

Key Applications

- Data concentrators
- 2D barcode scanners, label printers
- Graphical Panels up to XGA running RTOS or Linux
- Thermostats, HVAC, security and room control units
- Imaging/cameras
- Access control with biometrics, robotics
- Medical (patient monitoring, portable equipment)



Recommended Microchip Companion ICs

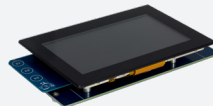
- MIC2800, MCP16502 and MCP1725 power management ICs
- ECC608 Secure Element
- KSZ8081 Ethernet PHY
- MCP2542 CAN Transceivers
- WILC3000 WiFi/BT IC or Module
- Serial Quad I/O Flash Memory
- Serial EEPROM Memory

Rich Development Ecosystem

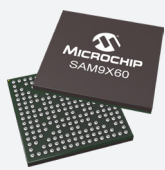
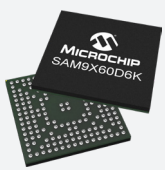
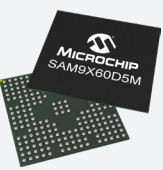
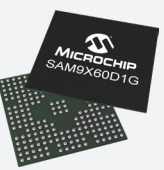
- Free mainline Linux distribution
- Ensemble graphics toolkit for Linux
 - Free-to-use, royalty-free graphical library optimized for Microchip MPUs
- MPLAB® X Integrated Development Environment
- MPLAB Harmony v3 software framework including graphics suite
 - Unified Software Development Framework for 32-bit MCUs and MPUs
- Multiple third-party software and hardware solutions
 - IAR Embedded Workbench
 - Arm Keil® MDK
 - FreeRTOS™
 - Express Logic X-Ware IoT Platform™



SAM9X60 Tools Guide

Tool	Part Number	Description	
SAM9X60 Evaluation Kit	DT100126	The SAM9X60-EK Evaluation Kit is ideal for evaluating and prototyping with the high performance, ultra-low power SAM9X60 ARM926EJ-S based MPU running up to 600 MHz. The SAM9X60 MPU features powerful peripherals for connectivity and user interface applications and offers advanced security functions.	
WVGA LCD Display Module	AC320005-5	The high-performance WVGA LCD Display Module with maXTouch® Technology is designed for evaluating the Microchip's graphics display solution and graphics library for 32-bit microcontrollers and microprocessors.	
J-32 Debug Probe	DV164232	The J-32 Debug Probe Debugger/Programmer provides affordable, fast and easy debugging and programming for Microchip's PIC32 and SAM MCU and MPU products. It is fully integrated into Microchip's powerful MPLAB® X Integrated Development Environment and easy-to-use Integrated Programming Environment.	

Product Selection Guide

				
Part Number	SAM9X60-V/DWB SAM9X60T-V/DWB	SAM9X60D6K-I/4GB SAM9X60D6KT-I/4GB	SAM9X60D5M-I/4FB SAM9X60D5MT-I/4FB	SAM9X60D1G-I/4FB SAM9X60D1GT-I/4FB
Integrated DRAM	–	8 MB SDRAM	64 MB DDR2	128 MB DDR2
Package	TFBGA228 11 × 11, 0.65 mm pitch	TFBGA196 11 × 11, 0.65 mm pitch	TFBGA233 14 × 14, 0.8 mm pitch	TFBGA233 14 × 14, 0.8 mm pitch
Temperature Range	–40°C to +105°C	–40°C to +85°C	–40°C to +85°C	–40°C to +85°C

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