Atmel's SAM9G45 Evaluation Kit Expedites Development on 400MHz ARM9-based Embedded MPU

Fully-featured Platform to Optimize External DDR2 and Flash Memory Organization for Maximum Performance and Cost-effective Data Storage

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Atmel® Corporation announced the SAM9G45-EK evaluation kit to support application development on the company's 400 MHz ARM926™-based embedded microprocessor (MPU) with DDR2 memory. The SAM9G45 offers 480 Mbps EHCI-compliant high-speed USB with on-chip PHY, Ethernet and SDIO for high-speed connectivity, plus LCD and touch sensing for intelligent user-interfaces (iUIs), and programmable 1.8 or 3.3 V I/O supply voltage implemented in a high-data bandwidth architecture with a dual EBI.

The evaluation board can be used to evaluate the performance benefits of the SAM9G45's dual external bus architecture, with two separate banks of 128 MBytes second-generation Dual Data Rate (DDR2) memory, each of which is connected to an external bus interface. Onboard flash memory includes 2 Gigabytes (GB) of NAND flash and 32 Mb (2M x 16) flash memory, which can be used to store the firmware uploaded in the DDR2 memory at system boot or application data.

Onboard peripherals include a high-speed (HS) USB host/device port, a second HS USB host port, an Ethernet 10/100 interface, two high-speed SDCard/SDIO/MMC slots, a 24-bit color WQVGA LCD TFT display with resistive touchscreen and backlight, composite video output, camera interface and a backup battery.

The SAM9G45 board offers dual boot capability, supporting Linux® and Microsoft® Windows®CE, with a pre-programmed demo showing the basic programming functionalities available under Linux and WinCE. Atmel provides full BSPs for both operating systems free of charge.

Linux Support

Atmel provides the Linux v2.6.27 operating system free of charge on its AT91SAM Linux portal at www.linux4sam.org. The Linux package includes the complete Linux v2.6.27 kernel, the Linux patch for the AT91SAM9G45 evaluation kit, device drivers, pre-built demonstrations and the Ångstrom distribution based on the OpenEmbedded building environment. The AT91SAM Linux portal is a gateway to a wide and growing community that provides Linux self-support for Atmel's entire ARM9™-based range of embedded 32-bit microprocessors.

Windows CE Support

A full-featured Windows embedded BSP for the AT91SAM9G45 kit provides everything engineers need to deploy Microsoft's embedded technologies on Atmel's ARM9-based products. It can be downloaded from http://www.at91.com/Windows4SAM. Extensive documentation is available that includes a ready-to-run demonstration explaining how to use and customize the BSP source code and how to build applications based on the Windows BSPs.

Extensive World-wide Third Party Ecosystem

Leading third-party providers of embedded software offer a wide range of middleware, development tools and RTOS that support the SAM9G45 as part of Atmel's worldwide ecosystem for AT91SAM microcontrollers as follows:

- **Mentor Graphics**
  "Our long-term, solid working relationship with Atmel enables customers to use our Nucleus RTOS and Nucleus Graphics user interface for optimum performance," said Glenn Perry, Mentor Graphics'® embedded systems division general manager. "By using the SAM9G45 board, and Mentor Graphics development tools and software IP, embedded developers can now create advanced 2D and 3D graphical user interfaces on their devices in record time, without the need for hardware acceleration."
  http://www.mentor.com/products/embedded_software/cpu/platform_solutions/atmel.cfm

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- **Micrium**
  "The SAM9G45 is the first embedded microprocessor that offers a true EHCI-compliant USB high-speed controller. For the sake of software portability, Intel defined the EHCI standard for the register level interface and memory data structures for the high-speed USB host controller hardware implementation. Our high-speed USB controller driver and USB stack also have an embedded hardware counterpart that can run at speeds found in PCs," said Christian Legare, Micrium's vice president. "Micrium's middleware and the powerful ARM9-based processor are a natural fit for customers looking for a small footprint in a real-time operating system (RTOS) rather than memory and performance hungry operating system alternatives."
  http://micrium.com/page/partners/atmel_alliance
- **QNX**
  "QNX board support packages for Atmel's ARM 9-based processors have become some of the most popular downloads on the QNX developer community portal, Foundry27.com," said Kroy Chang-Zeviar, QNX Software Systems' business alliance manager. "Combined with the hard realtime performance, accelerated 2D/3D graphics, Flash Lite HMIs, and ultra reliability of the QNX® Neutrino® operating system, Atmel's SAM9G45-EK offers an ideal springboard for prototyping and designing building automation systems, HVAC controls, medical devices, and other mission-critical applications."
  http://community.qnx.com/sf/wiki/do/viewPage/projects.bsp/wiki/BSPAndDrivers
- **Fluffy Spider Technologies**
  "The Atmel SAM9G45 eMPU offers intelligent device manufacturers and application developers a feature-rich and cost-effective platform," said Robi Karp, Fluffy Spider Technologies' CEO. "By supporting the SAM9G45, our FancyPants multimedia and graphics engine helps OEMs add value to the silicon and differentiate their wares with professional, eye-catching and media-rich user interfaces."
  http://www.fst.net/partners/partners.html
- **Timesys**
  "LinuxLink, our software development framework, is widely used by customers designing Linux-based embedded products using Atmel processors," said Charlie Ashton, Timesys'® vice president of business development. "The LinuxLink subscription for the latest AT91SAM9G45 processor and reference board provides pre-assembled starting points that jump start Linux product development for Atmel customers. The subscription helps customers to adapt Linux for their products by assisting with Linux kernel and root filesystem customizations, followed by final system integration. With LinuxLink, SAM9G45 customers can get their product to market faster and at a much lower development cost. In addition, Timesys expert engineering support is available at every stage of their development."
  https://linuxlink.timesys.com/3/Linux/Atmel
- **Adeneo Embedded**
  "Adeneo Embedded provides Windows Embedded CE training, system development support and BSP maintenance to OEMs willing to secure the success of their SAM9G45-based design," said Yannick Chammings, Adeneo Embedded's CEO. "Adeneo Embedded and Atmel are running jointly in the USA and in Europe, a Windows Embedded CE training program adapted to the AT91SAM9 family. Based on the standard Microsoft course, these one-week training programs allow attendees to graduate with an AT91SAM9 evaluation kit with Windows Embedded BSP, and the expertise to customize and to develop applications." For more details about Adeneo's Embedded Solutions and Services for the AT91SAM9G45-EK, please visit
  http://www.adeneo-embedded.com or contact sales@adeneo-embedded.com
  or contact sales@adeneo-embedded.com
  http://www.adeneo-embedded.com/srt/en/document/show?location.id:=1330

Availability
The SAM9G45 evaluation kit is available now (order code AT91SAM9G45-EKES).