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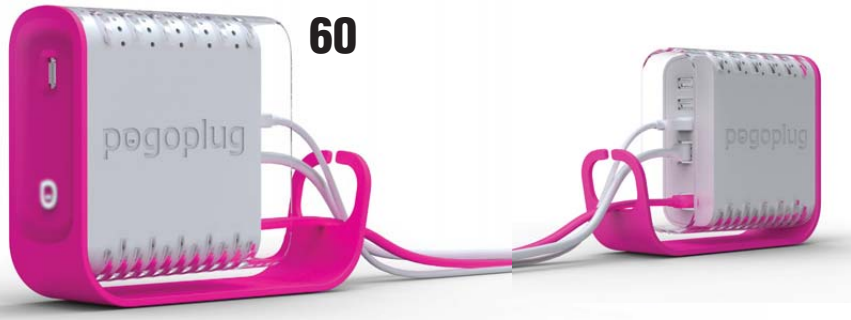

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Notes on Entering the "Connected on Demand" Era

By Erik Ploof, ARM

The count down to the 2012 Olympic Games has now begun and these games will offer live online streamed content, where and when we want it. Our expectations of sports coverage have undoubtedly come a long way since sports fans huddled around TV sets in Berlin and Leipzig to see the 1936 Olympic Games broadcast live.

You only have to look back a few years to see evidence of how far technology has come; less then five years ago a set-top box or TV just received a broadcast program, so it was a case of settling down at the allocated time to take in your favorite show or sporting event. Today High Definition (HD) set-top box (STB) or high end DTV have integrated storage devices for recording your favorite show, pausing live TV or fast forwarding through commercials. The set-top box is also connected to a home network and the internet, enabling families and friends to share content and services via a variety of devices in the home.

Yes, we have now entered the so called "connected on demand" era. Consumers are expecting fast, reliable always-on connectivity that is accessible anywhere. Practically all new Blu-ray players have Ethernet connections. The latest DTV allows you to connect to the Internet and stream your favorite movies. Gaming consoles are connected to the Internet, so that you can watch movies or play on-line with your friends around the globe. Wi-Fi Wireless networks have also allowed millions of households to link Netbooks, e-book -readers, PCs and DTVs into one home network, so family members can share movies, music, videos and photos.

This issue of IQ features a special section on the connected home and the integration task ahead to truly satisfy the consumer's insatiable appetite for 24/7 on demand content.

The Internet is now available to everyone, enabling a host of use cases from news gathering and content sharing to instant messaging. This special section provides insight into design techniques and methodologies for unlocking the power of the internet in advanced home devices. Starting with Ittiam, look at the design of an internet enabled device for the home using ARM Cortex-A8 and NEON technology. The Cortex-A8 with NEON is the latest processor from ARM which packs a punch on multimedia performance. (page 22).

Yahoo! first established a new standard in Internet enhanced DTV at CES 2009 with their connected DTV Widget technology. Yahoo! TV Widgets provides consumer with the crème de la creme of the Internet in tune with the simplicity of television. On page 28 we detail the technology and requirements, based on the experience of Yahoo! and ARM in optimizing TV Widget initiation, launch and run-time, on an ARM-powered DTV system.

When we look at the connected home we can't forget the importance of microcontrollers in controlling everything from entertainment to climate control. Having on demand home entertainment loses its appeal somewhat if your den is like Siberia! Here we catch up with Geoff Lees, general manager at NXP to find out how he believes the ARM Cortex-M0 can be leveraged for energy efficient MCU design. (page 44)

Having all these wonderful gizmos and gadgets to ensure continuous connection no mater where we are has increased the importance of battery life and performance management. As Chris Shore points out the challenges of power and performance optimization is no longer just a hardware issue and software engineers need to spend more time focusing on energy-efficient software. (page 48)

Finally, for a real glimpse of connected on demand, check out the new IQMagazineonline.com, for all the ARM news, all the time!

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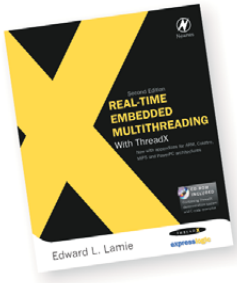

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Android

ARM Launches Solution Center to Foster Innovation and Speed Development of Android-Powered Devices

Tools, solutions and services from ARM Connected Community to fuel the next-generation of open source mobile and connected devices ARM has announced the Solution Center for Android, a resource for designers and developers of ARM technology-based products running on Android, the open source platform from the Open Handset Alliance™. More than 35 members of the ARM Connected Community™ have joined this initiative, once again demonstrating the strength of the ARM ecosystem.

As the user experience in the home and on mobile devices evolves, consumers expect products from picture frames to smart phones and netbooks to fit their connected lifestyle with always-on connectivity and easy access to the newest relevant applications. To meet these always-shifting market demands, developers require assurance that the components they are using are up to the task. Android was written for the ARM architecture and Android 2.0 was launched on high-performance Cortex™-A processor designs and has been tested extensively on major handset solutions.

"As we have seen through the recent launches of handsets such as Motorola's Droid and Acer's Liquid, the Android platform represents a fundamental change in the open source ecosystem," said Kevin Smith, VP Segment Marketing, ARM. "ARM is the leading processor architecture for internet everywhere applications from mobile to the connected home and with that leadership, ARM is in a position to foster an innovative ecosystem to ensure that device manufacturers have the best development solutions at their disposal. The Solution Center for Android serves as a one-stop guide to provide developers with the tools and information they need to create innovative devices with applications that satisfy consumers' needs."

"Consumer adoption of smartbooks, smartphones and other 'always on' connected devices is forecast to increase significantly in the next few years," said Jeff Orr, senior analyst at ABI Research. "Manufacturers of these devices need a support structure that enables them to develop cutting-edge devices quickly and affordably." In addition to the support of major OEMs, Silicon Partners and solution providers, the Solution Center for Android comprises more than 35 members of the ARM Connected Community that provide development tools, solutions and services optimized specifically for Android on the ARM platform.

Infineon and ARM Announce License Agreement for Advanced Security Applications

Infineon Technologies has announced a long-term strategic collaboration in the field of security controllers (MCU) for chip card and security applications. Based on the agreement, Infineon will receive an ARMv6M and ARMv7M architecture license. With its own specialized ARM® architecture-compliant CPU cores, Infineon will address the current and future needs of the security markets in terms of hardware-based security, combined with the advantages of the industry's most widely licensed 32-bit CPU technology.

Infineon is the only ARM partner to have an ARM architecture license specifically for security applications. Under this agreement, Infineon is able to integrate its innovative security measures into the heart of the CPU core implementation, while maintaining compatibility with the standard ARM processor instruction set.

This approach enables code reuse and access to the wide ARM development ecosystem. Infineon aims to have the first products in volume production by the second half of 2011, initially targeting the Multimedia SIM cards market.

In addition, Infineon will combine the ARM architecture and its "Integrity Guard" hardware security technology, designed for use in highly demanding chip card-based and security applications, in future products for high-end security segments.

Carbon enhances ARM IP Portfolio

Carbon Design Systems said its ARM IP library now includes all Cortex processors, AMBA AXI Fabric and peripherals.

More specifically, Carbon Design System noted that its IP portfolio now includes the entire Cortex and ARM11 families of processors, along with ARM9 and ARM7 family of processors. Moreover, it provides support for the ARM AMBA NIC301 Network Interconnect, as well as the AMBA AXI, AHB and APB peripherals.

Carbonized models of ARM IP, Carbon added, are compiled directly from the original register transfer level (RTL) code to guarantee implementation accuracy. These models can be integrated into any virtual prototype system used for architectural analysis and pre-silicon hardware/software validation, including Carbon SoC Designer and OSCI SystemC platforms. The Carbonized models feature debugger integrations for both software developers and hardware engineers with support for semi-hosting, break pointing and single-stepping, the company said.

Macraigor Systems Provides On-Chip Debug Solutions with Eclipse Ganymede/Galileo Platform and Full GNU Toolset Support for Cortex-A8

Engineers building applications for ARM technology-based processors can quickly and efficiently debug their hardware and software designs.

Macraigor Systems has ported their proprietary On-Chip Debug Technology (OCDemon), GNU Tools Suite and Eclipse Ganymede/Galileo platform to the ARM Cortex-A8 processor. The Cortex-A8 is ARM's first superscalar processor featuring technology for enhanced code density and performance, NEON technology for multimedia and signal processing, and Jazelle RCT (Runtime Compilation Target) technology for high performance, power-efficient mobile devices.

The Macraigor Eclipse Ganymede/Galileo + GNU Tools Suite is an implementation and packaging of the Eclipse Ganymede/Galileo platform, CDT (C/C++ Development Tooling) 5.0.x, and DSDP (Device Software Development Platform) 1.0 plug-ins, and a program called OcdRemote that provides an interface between Eclipse, the GDB debugger and a Macraigor On-Chip Debug device.

The free port of the GNU Tools Suite and Eclipse Ganymede/Galileo platform for ARM Cortex-A8 can be downloaded at www.macraigor.com.

Home Entertainment

STMicroelectronics and ARM Team Up to Power Next-Generation Home Entertainment

ST has adopted the ARM Cortex-A9 MPCore processor, in addition to the Mali-400 graphics processor, for its upcoming set-top box and digital TV system-on-chip (SoC) ICs.The Cortex-A9 MPCore processor provides ST with the scalable high performance required to enable the high-bandwidth broadband and broadcast content being streamed into homes, while significantly improving power efficiency when compared to alternative solutions. The adoption of ARM technology enables ST to build upon the expertise accumulated during its SoC development with its successful ST-40 processor, and also signals the company's intention to base its next-generation range of HDTV SoCs on ARM technology. ST already has vast experience in developing cutting-edge complex SoCs based on ARM technology for various applications in wireless, computer, automotive and industrial markets.

By adopting the Cortex-A9 MPCore processor for home entertainment markets, ST is also able to access the comprehensive and expanding software ecosystem around the Cortex-A9 MPCore processor, including Adobe® Flash® technology and leading web browsers such as Opera, to provide compelling multimedia performance.

"Building our next-generation HDTV consumer devices around the high-performance ARM architecture will enable us to continue to deliver best-in-class devices for our customers, while providing a simple migration route from our existing ST-40 based chips," said Philippe Lambinet, executive vice president, Home Entertainment and Display Group, STMicroelectronics. "In addition, our customers now gain access to the broad ARM ecosystem of support around the processors."

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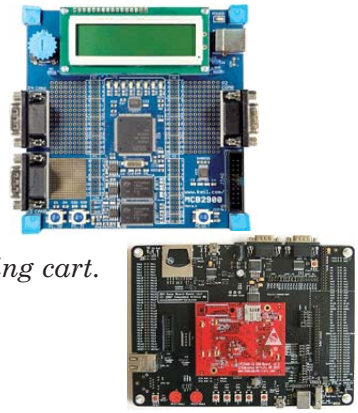

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