



## Processor Central Newsletter, November 2006

The Xilinx Processor Central Quarterly eNewsletter is intended to keep you informed of the embedded processing-related news from Xilinx and our partners. In addition to the information below, you can visit Xilinx Processor Central [www.xilinx.com/processor](http://www.xilinx.com/processor) for the latest information on Xilinx Embedded Processing Solutions.

### Featured NewsFlashes

#### [Embedded Tech Online Webcast – Tuesday December 12th, 2006!](#)

Quick Start your embedded software development with  $\mu$ Clinux on the flexible MicroBlaze™ processing solution

[Learn More and Register Now](#)

#### [New Embedded Magazine Available Online Now!](#)

Over 15 embedded articles from industry luminaries and technical staff from users, Xilinx, distributors, Embedded and ESL partners

New product announcements and Application Notes

#### [New Demonstration Video Available Online!](#)

Build a MicroBlaze Custom Embedded Processing System in just minutes

Watch in real-time how quick and easy it is to use Platform Studio to create a flexible MicroBlaze soft processing/IP system

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### Top Story

#### Xilinx Processing Solutions in the News

##### [Xilinx Embedded Processing Solutions Rank in Top 10 for ESD Survey](#)

Xilinx MicroBlaze and PowerPC™ processing solutions landed in the top 10 for Embedded Systems Design's "State of the Embedded Market Survey". Consulting Technical Editor Jack Ganssle writes up the survey in "What Processor is in your product?", ESD issue October 2006. FPGA processing solutions also serve the many reasons that respondents say cause them to change CPUs.

[Research the Xilinx Top 10 ESD survey results yourself](#)

##### [Embedded Market Forecasters \(EMF\) Survey Reveals that Xilinx Leads in Familiarity with and Usage of Embedded Processing FPGAs](#)

Jerry Krasner, Ph.D. MBA, is Vice president and Chief Analyst for Embedded Market Forecasters. The two comprehensive embedded developer's surveys that EMF conducted in May and July 2006 make it clear that Xilinx remains the market leader in all categories of FPGA processing systems.

[Read how Jerry Krasner explains how "Embedded Users Tell EMF Who's Hot, Who's Not"](#)

### Xilinx Embedded Magazine and Other Publications

[Xilinx Embedded Magazine](#)

The Xilinx Embedded Magazine is published with a wide variety of embedded related articles authored by Xilinx, embedded partners, end-user customers and industry luminaries. The current issue is hot off the press and includes articles on these topics:

- [Embedded Users Tell EMF Who's Hot, Who's Not](#) by Jerry Krasner, Ph.D., MBA  
Surveys reveal that Xilinx leads in familiarity with and usage of embedded processing FPGAs.
  - [XPS Version 8.2 Advances Processing Development](#)  
The new version of Platform Studio introduces unique processing support and ease-of-design enhancements.
  - [Lowering the Cost of Linux](#)  
You can automate the process of porting an OS using the MLD format.
  - [Get to Market with  \$\mu\$ Clinux and the MicroBlaze Processor](#)  
You can pair the  $\mu$ Clinux embedded OS with a MicroBlaze soft processor to create a platform-independent software development environment.
  - [The MicroBlaze v5.0 Soft-Processor Core: Optimized for Performance](#)  
The new MicroBlaze core combines both performance and flexibility.
  - [Scalable Embedded Networking Platform](#)  
Xilinx provides flexible Ethernet solutions that you can customize to meet a variety of application performance and cost requirements.
  - [The World is Analog, Not Digital](#)  
Accelerate your analog world with the Virtex™-4 FX PowerPC floating-point unit.
  - [Streams-Based Programming Accelerates FPGA-Based Embedded Applications](#)  
You can simplify the acceleration of complex hardware/software applications with streams-oriented C-language programming methods.
  - [How to Apply FPGAs to Robotic Control Systems](#)  
With Spartan™-3E FPGAs, your custom IP, and a PicoBlaze™ soft processor, you can create an exceptional solution to robotic design challenges.
  - [Low Cost Meets Embedded Processing Development Kits](#)  
The Spartan-3E 1600E Development Kit supports flexible MicroBlaze soft-processing design.
  - [Soft-Processing IP Avoids Obsolescence Challenges](#)  
Xilinx offers alternative solutions for discrete  $\mu$ C/ $\mu$ P and ASIC-based devices.
  - [Designing Real-World Embedded PowerPC Applications](#)  
You can use the Xilinx Embedded Development Kit to interface custom IP cores to the PowerPC processor.
  - [FPGA Embedded Test Speeds Development](#)  
FPGA embedded measurement cores and trace ports simplify your logic analyzer-based debugging and validation efforts.
  - [LinuxWorks Solutions for FPGA Processing Systems](#)  
LinuxWorks offers open-source and open-standard RTOS support for Xilinx Platform FPGA-based processing.
  - [Create Better, Faster, Cheaper Designs for FPGAs](#)  
Mobius simultaneously achieves high productivity and QoR comparable to the best HDL designs.
  - [Achieve Performance Increases and Product Differentiation with OPB Mastering](#)  
A simple OPB bus mastering IP core, in addition to the MicroBlaze processor, can allow for boosts in performance.
- [View the entire Xilinx Embedded Magazine Issue #4 Online](#)

#### **Other Recent Publications on Xilinx Embedded Solutions**

- [Embedded.com story by Gabe Moretti on, Virtual Prototype Modeling comes to Xilinx MicroBlaze, Virtex FPGAs](#)
- [IBM SOC Drawer, Sam Siewert on, Eyes Inside the Silicon, On-Chip analysis, debug, and tracing methods ease SOC development](#)

#### **Xilinx Processing Solutions — Product Update**

**Xilinx Delivers An Innovative And Flexible Range Of Processing Solutions For Your Unique Embedded Applications. Our processing solutions include these key elements:**

[Xilinx Embedded Processing Solutions](#)

Our processing capabilities provide performance and customization across a wide range of end markets including: aerospace and defense, wired and wireless communications, automotive, audio/video broadcast, industrial control, test and measurement, and consumer.

[Learn about all Xilinx Embedded Processing Solutions](#), including hard and soft processing cores, IP, development tools and kits.

### **New EDK/XPS 8.2 Service Pack #2**

Service pack (SP2) is now available for the Xilinx Platform Studio embedded tool suite (XPS) and the Embedded Development Kit (EDK). Registered users can download the service pack directly via our on-line lounge or download center. Service pack SP2 introduces new MicroBlaze support (see below), new device and IP support as well as product fixes and other enhancements.

[Download your update Now!](#)

### **New MicroBlaze Version v5.00**

This new enhanced version of MicroBlaze is fine-tuned for squeezing the most performance out of Virtex logic and the new Virtex-5 LX devices. The XPS Xilinx Platform Studio tool suite automatically configures an area-optimized version of MicroBlaze for Spartan applications and chooses the faster MB v5.00 under the hood for Virtex designs.

New features include:

- Fewer cycles per instruction (CPI) for performance critical applications
- Higher maximum clock frequency
- 5 pipeline stages (25% better CPI)
- 240 DMIPS (45% higher Integer performance)
- 50 MFLOPS (50% higher FPU performance)
- PVR — Processor Version Register: Store Processor ID, user information internally

[Learn more about the new MicroBlaze](#)

### **MicroBlaze HW/SW Development Kit — Spartan-3E 1600E Edition**

The fully integrated, low cost, MicroBlaze Development Kit, Spartan-3E 1600E Edition, supports flexible MicroBlaze soft processing design for the Xilinx Spartan-3E series of Platform FPGAs.

The MicroBlaze Development Kit, Spartan-3E 1600E Edition includes the following:

- Spartan-3E SP3E1600E development board
- Platform Studio embedded tool suite
- ISE™ WebPACK™ FPGA and EDK design software
- Pre-Verified reference designs
- All documentation, JTAG probe, power supply, serial and Ethernet cables

[Get more information and purchase now](#)

### **Xilinx Processing IP**

Xilinx provides a broad processing IP catalog along with the Embedded Development Kit for PowerPC and MicroBlaze based design. Example IP cores include peripherals, infrastructure, interface modules, memory interfaces and more. High end IP cores can be evaluated and purchased separately.

[Learn More about IP included in the EDK](#)

## **Webcasts, Workshops and Training**

### **Quick Start Your Embedded Software Development With $\mu$ linux on the Flexible Microblaze Processing Solution**

In an earlier MicroBlaze Quick Start Webcast, [view OnDemand Webcast here](#), we presented the advantages of a flexible processing solution and the steps to build a custom embedded system that meets application requirements. In this new Webcast, we present the open source  $\mu$ Clinux (a Linux variant) solution for MicroBlaze and demonstrate the steps to rapidly build a  $\mu$ Clinux kernel image (BSP) auto-configured for the custom embedded system.

[Register now](#)

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### **X-Tech 2006 — Pacific Northwest USA**

- X-Tech is a series of free, one day technical seminars focused on topics important to engineers and system architects. These X-Tech events have multiple tracks of parallel content to make sure that topics of all interests are provided to attendees.

The Pacific Northwest will service the following areas with 15 different training sessions distributed over 3 different tracks, covering Embedded, DSP, FPGA design and more:

- Tue 12/5 B.C. Canada, Burnaby
- Wed 12/6 WA USA, Lynnwood
- Thur 12/7 OR USA, Beaverton

[Register now](#)

### **Avnet Introduces New $\mu$ Clinux on MicroBlaze SpeedWay Workshop**

- Get real-time experience developing true embedded systems on real hardware platforms and come home with valuable experience the same day. This 1-day, hands-on workshop will show you how to get  $\mu$ Clinux running on a user defined MicroBlaze soft processing system.

[Learn more and register now!](#)

### **Two New Avnet On-Ramp Seminars Target Xilinx Embedded Processing**

- Avnet offers a variety of 1~2 hour seminars on FPGA embedded processing system design in addition to the full-day SpeedWay Workshop described above. Register now for "Maximizing MicroBlaze Performance" and/or "Creating a Custom Memory Controller IP Using EDK 8.2i and the Platform Studio IP Creation Wizard".

[View agendas and schedule a seminar now](#)

### **Learn $\mu$ Clinux with New Getting Started DVD from Avnet Electronics Marketing**

- Are you interested in using  $\mu$ Clinux on your next Xilinx MicroBlaze design? Avnet's  $\mu$ Clinux Getting Started DVD provides you with everything needed to develop a  $\mu$ Clinux environment on a MicroBlaze system.

The DVD delivers over four hours of multimedia presentations, providing the necessary background and training you will need to successfully create a MicroBlaze and  $\mu$ Clinux system.

[Learn more and purchase DVD now](#)

### **Nu Horizons XpressTrack Training: PowerPC Embedded Design**

- This one-day class provides embedded systems developers with the necessary skills to develop a PPC System on a Programmable Chip system utilizing the Virtex 4 FPGA. Utilizing the Embedded Development Kit (EDK) the embedded systems developers will create a full system based on the Nu Horizons XC4FX12 evaluation board, labs provide hands on experience with the development, verification, debugging, and simulation of an embedded system.

[See when the class is being offered in your area](#)

## **Embedded Partner Solutions**

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### **Visit All of Xilinx Embedded Partners and Learn About Their Solutions**

#### **Micrium — Try-Before-You-Buy RTOS and TCP/IP**

- Micrium's  $\mu$ C/OS-II and  $\mu$ C/TCP-IP can run on any FPGA from Xilinx that supports MicroBlaze or PowerPC! 45-Day trial product downloads, as well as project and MLD files for specific targets are available.

[Learn more and download trial product here](#)

## Lauterbach — TRACE32 Multi Core Debugger

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Lauterbach extended its TRACE32 product line of debuggers to support MicroBlaze in addition to the PPC405 core. Thus Lauterbach supports all major cores used in Xilinx Embedded processing solutions. A real time trace tool for the PPC cores is available and is under development for Microblaze. TRACE32 can debug several cores in one chip at the same time.

[Learn more about Lauterbach solutions for Xilinx](#)

## **Electronic System Level Design (ESL) Partner Solutions**

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### Visit all Xilinx ESL Partners and Learn About Their Solutions

#### **ESL for FPGA Training Forum**

On November 6, 2006, Xilinx and six of its ESL Initiative Innovate members, Celoxica, CriticalBlue, Codetronix, Impulse, CebaTech and Teja made history by delivering the industry's 1<sup>st</sup> "ESL for FPGA Training Forum".

Participants took real life applications, such as image processing, from High Level Description to actual implementation on Xilinx FPGAs (Virtex-2P and Virtex-4) using partners' ESL tools and Xilinx Platform Studio and ISE SW. Participants explored the trade off between purely SW acceleration (HLL to gate) and SW/HW partitioning (execution on embedded processor and accelerating the time critical portion in FPGA Fabric) to achieve the design objectives.

[Learn more about Xilinx ESL Initiative, current members and their offerings in ESL for FPGA solutions](#)

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