Xylon d.o.o.

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Features

- Design framework for automotive instrument clusters with LCD and analog gauges
- Comes preloaded with the cluster demo
- Multiprocessor system architecture with the low-cost Microchip PIC18F2680 MCU and the Xilinx® MicroBlaze™ CPU in the FPGA
- Reference FPGA design including demo application's source code
- System packed in a single Plexiglas casing
- Development platform based on Xylon logiCRAFT3 platform with an add-on board
- Xilinx Spartan®-3E XC3S1200E device
- 7" 800x480 LCD color display
- 32 MB SDRAM, 8 MB NOR memory
- PAL/NTSC video camera input
- Demo controlled by provided user interface
- Gauges driven by Switec stepper motors
- Installation CD: FPGA reference design with evaluation logicBRICKS™ IP cores, demo sources, boards' schematics and documentation

Figure 1: The logiTAP Platform

Applications

The logiHAC is primarily designed for the automotive instrument cluster application. In addition, the platform can be used for evaluations and developments of the maritime and avionics instrumentation.

General Description

Modern vehicles are filled with electronics information and communication technology which generate high-information contents. An automotive instrument cluster is the main point of convergence. It must display diverse contents to a driver in an easily manageable way. Such display is beyond capabilities of traditional automotive instrument clusters built of analog gauges and small resolution LCDs. Graphics-driven re-configurable instrument clusters that incorporate high-resolution TFT displays are the solution. They can change graphically rendered information content during a drive, i.e. exchange or combine graphically rendered gauges and video from car's rear-view parking assistance camera.

Xylon logiHAC is an illustrative example of such a system, which implements multiprocessor system architecture. A low-cost PIC18F2680 microcontroller (MCU) controls the FPGA based graphics controller through the Serial Peripheral Interface Bus (SPI). The PIC and the SPI bus support the concept of the FPGA graphics coprocessor and can be exchanged by other MCU or bussing option in real designs.

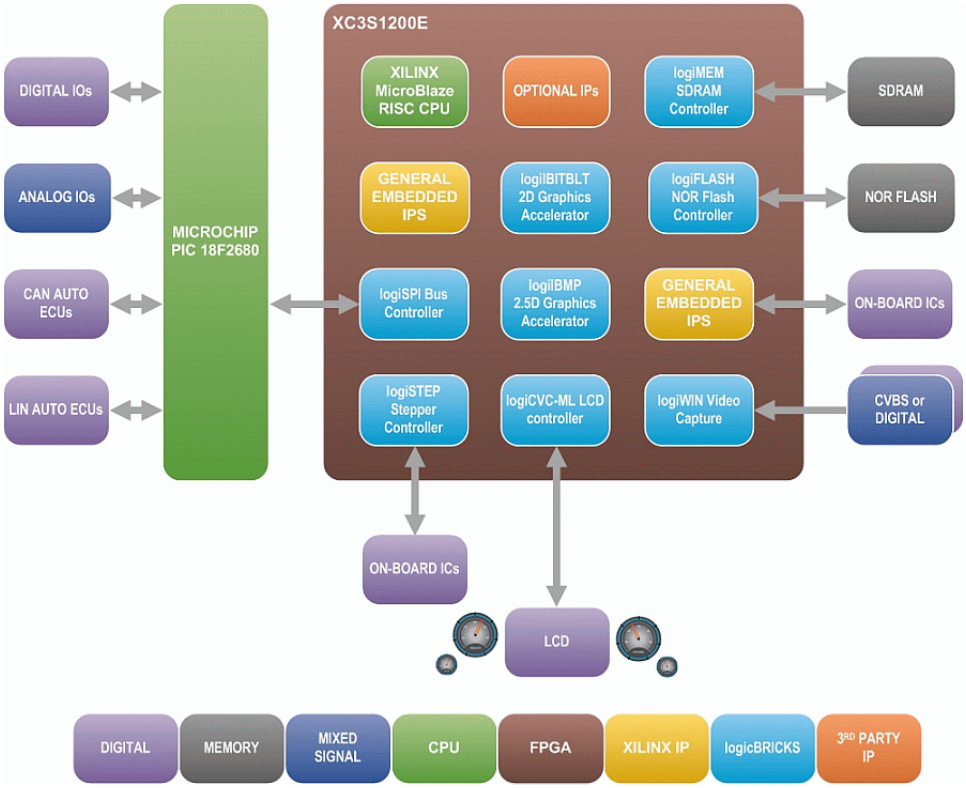

Figure 2: The logiHAC Block Diagram – Multiprocessors Architecture

This system architecture clearly illustrates benefits of the FPGA based automotive instrument cluster design: designs with in-house already accepted MCUs can be expanded with new enhanced graphics features or multiple stepper motors control, high level of hardware and software reuse, development time savings and fast time-to-market, support for vehicle networking (standards compliant middleware) on the MCU side can be preserved, low-power modes and fast boot-up times can be handled by MCUs, low cost graphics solution, FPGA flexibility and configurability, etc.

Xylon logiHAC Development Kit based on Xilinx Spartan-3E offers a complete design framework for embedded designers developing automotive instrument clusters with an integrated high-resolution LCD display. The kit combines the low-cost Xilinx FPGA device and the Xilinx Embedded Development Kit (EDK) integrated software for designing embedded systems with the Xylon logiCRAFT3 display development platform, an add-on cluster CRFC03 board, and the Xylon logicBRICKS IP cores library.

logiHAC Demo Applications

The preloaded logiHAC demo application has an automatically and manually controlled operational mode. The automatic mode simulates drive conditions, while the manual mode allows for gauges and screen control by a provided user interface (potentiometers and push-buttons). The demo showcases gauges zeroing (zero position detection) and multiple exchangeable LCD screens: welcome, power meter gauge, econometer gauge, navigation gauge, rear-view camera view, pedestrian sensors screen, trip computer, and different warning icons and text messages among the screens.

Figure 3: logiHAC Demo Screens

Learn more about logiHAC demo:
http://www.logicbricks.com/logicBRICKS_IP_Library/Video_Galleries/logiHAC_Clips.aspx

Package Content

- Xylon logiCRAFT3 Spartan-3E based board
- Xylon CRFC03 cluster daughter card for the logiCRAFT3
- Xylon CRFT03 daughter card for the logiCRAFT3
- Debugging serial cable
- 12 VDC power supply
- The logiHAC installation CD image available for FTP. The CD includes the reference FPGA with evaluation logicBRICKS IP cores, low-level drivers, documentation, schematics, etc.

The logiCRAFT3, the CRFC03 and the CRFT03 PCB boards are packed in the logiTAP Plexiglas casing.

Recommended Design Experience

The user should have experience in the following areas:

- Xilinx design tools
- C programming

The logicBRICKS IP cores are fully supported by the Xilinx Platform Studio and the EDK, and their use does not require any particular skills beyond general Xilinx tools knowledge.

Related Xylon Products

Xylon logicBRICKS IP cores can be evaluated on Xylon logiHAC platform, which is designed especially for developers of automotive instrument clusters. The logiHAC demonstrates modularity on all levels: software, board, FPGA, and IP cores.

To learn more about the logiHAC and other Xylon development platforms, contact Xylon or visit the web www.logicbricks.com. Xylon logiCRAFT3 platform, designed especially for developers working in the fields of multimedia and infotainment, is the basis of the logiHAC system. The logiCRAFT3 makes an excellent development tool appropriate for the development of different embedded systems, including systems with strong graphics capabilities.

To learn more about the logiHAC and other Xylon development platforms, contact Xylon or visit the web:

Email: support@logicbricks.com
URL: http://www.logicbricks.com/Product/Detail.aspx?sifraProizvod=2340&sifraCvor=415

Ordering Information

This product is available directly from Xylon. Please visit our web shop or contact Xylon for pricing and additional information:

Email: sales@logicbricks.com
URL: www.logicbricks.com

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Related Information

Xilinx Programmable Logic

For information on Xilinx programmable logic or development system software, contact your local Xilinx sales office, or:

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Revision History

Version	Date	Note
1.00.	03.04.2009	Initial Xylon's release.