Press Release

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Fujitsu Microelectronics Limited

Fujitsu to Launch ARM1176 Prototyping Kit

Tokyo, May 8, 2008 - Fujitsu Microelectronics Limited (FML) today announced that it will launch an ARM1176 prototyping kit, designed to shorten the development lead time for customers using FML's ASIC(1) and COT(2) services to develop system LSIs that include the ARM1176JZF-S™, ARM926EJ-S™, or ARM946E-S™ processor cores. The new prototyping kit will include an evaluation board loaded with chips for trying out the ARM1176JZF-S processor, a FPGA(3) reference design, and sample programs. FML's prototyping kit will enable customers to debug their logic circuits and develop device drivers before fabrication of their chips, resulting in a faster system-LSI design process. The new kit will be available from July 2008, and will be exhibited at the 11th Embedded Systems Expo, to be held from May 14 to 16, 2008 at Tokyo Big Sight.

As digital audio-visual equipment increasingly features higher and more multiple functionalities, embedded system LSIs have become larger and more complicated, heightening the importance and need for more streamlined development cycles.

In order to shorten development lead times for system LSIs used in digital audio-visual equipment that process still or moving images - such as digital still cameras, digital video cameras, and mobile phones - in addition to logic simulation, it is mandatory to execute verification in an environment that resembles as closely as possible the actual resulting system LSI.

Through its ASIC and COT services, for customers developing system LSIs using the ARM926EJ-S and ARM946E-S processor cores, FML already offers a prototyping kit that includes an evaluation board with LSIs and FPGAs for evaluation, as well as an FPGA reference design. FML will offer a new prototyping kit for the ARM1176JZF-S, for which demand is growing.

Customers can use the prototyping kit when developing high-performance system LSIs capable of image processing, for example, to debug both their hardware and software in an environment that closely resembles the actual system LSI, thereby enabling "first-shot full operation" of engineering samples, thus further shortening the development lead time.

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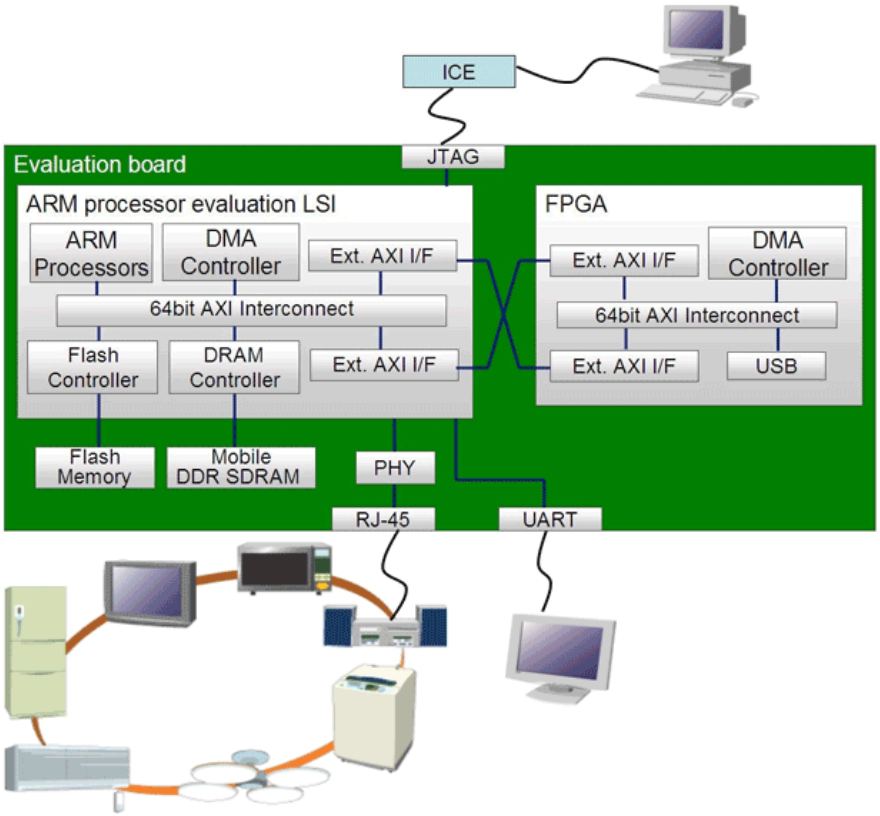

Figure 1: Visual overview of the ARM1176 Prototyping Kit

Sample Price and Availability

Product Name	Price	Shipment
ARM1176 Prototyping Kit	4.3 million JPY	From July 2008

Product Features

1. **Verification can be performed in near real conditions**
   Performance of the external AXI bus - which connects the evaluation LSI for ARM processors on the evaluation board with the FPGA loaded with the customer's logic circuit - was improved by a range of from 8 times to up to 16 times (FML comparison) compared to previously available products. This makes it possible for customers to verify their own logic under conditions that closely resemble the resulting system LSI. Due to the fact that system LSIs for still images or video processing take a considerable amount of time to verify using logic simulation, practical testing that resembles the actual system LSI environment can shorten the development lead time.

2. **FPGA reference design helps shorten LSI development lead time**
   Because the FPGA reference design includes dummy modules that comply with industry-standard advanced microcontroller bus architecture (AMBA[(4)]), customers can simply switch the dummy modules with their own modules to easily build a prototype design of a system LSI based on the ARM1176JZF-S.
   Using this FPGA, customers can verify their custom logic and develop device drivers

before the system LSI has been fabricated, thereby reducing the development lead time. The evaluation board is compatible with the HapsTrak specification of the prototyping board from Synplicity, with an expandable FPGA domain.

Glossary

1 **ASIC:**

Application-specific IC. A custom IC for specific applications (customers).

2 **COT:**

Customer-owned tooling. Refers to customers designing and developing their own chips. Unlike mere foundry business, the LSI manufacturer collaborates with the customer from the design stage.

3 **FPGA:**

FieldField-programmable gate array. A chip in which logical operation can be reprogrammed after manufacture.

4 **AMBA:**

Advanced microcontroller bus architecture. An industry-standard SoC (System on Chip) on-chip bus from ARM.

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https://www-s.fujitsu.com/global/news/contacts/inquiries/index.html

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About Fujitsu Microelectronics (FML)

Fujitsu Microelectronics Limited designs and manufactures semiconductors, providing highly reliable, optimal solutions and support to meet the varying needs of its customers. Products and services include ASICs/COT, ASSPs, power management ICs, and flash microcontrollers, with wide-ranging expertise focusing on imaging, wireless, automotive and security applications. Fujitsu Microelectronics also drives power efficiency and environmental initiatives. Headquartered in Tokyo, Fujitsu Microelectronics Limited was established as a subsidiary of Fujitsu Limited on March 21, 2008. Through its global sales and development network, with sites in Japan and throughout Asia, Europe, and the Americas, Fujitsu Microelectronics offers semiconductor solutions to the global marketplace. For more information: http://jp.fujitsu.com/group/fml/en/

Key Specifications of the ARM1176 Prototyping Kit

Evaluation Board	LSI	ARM processors evaluation LSI and FPGA
	External Bus	64 bit External AXI (*1) (DDR, max. 100 MHz)
	Memory	Flash memory 32MB Mobile DDR SDRAM 128 MB
	External Interface	Ethernet, UART, ICE
LSI used to evaluate ARM processor	Multi-core processor	ARM1176JZF-S (max. 500 MHz), ARM926EJ-S (max. 400 MHz), ARM946E-S (max. 400 MHz)
	Process technology	CMOS 90nm low power-consumption process
	Package	FCBGA (*2) 1156 (35mm x 35mm)
	Power consumption	1.2 W (ARM1176JZF-S: operating at 500MHz, typ.)
Other	FPGA reference design, sample program, simulation model, user's manual	

**1: AXI:
Advanced eXtensible Interface. A high-speed bus conforming to ARM's AMBA 3.0 specification. Used as processor bus for ARM1176JZF-S

**2: FCBGA:
A multi-pin package that includes flip-chip bonding technologies.