A Study on the Efficient Embedded System Application

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효율적인 임베디드시스템 응용에 관한 연구

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요 약

This paper presents a method of constructing the embedded systems based on hardware/software co-design approach that was key methodology.
The proposed method was important technology enable to implement advanced multimedia systems and digital contents creating that are rapidly growing of the new information technology.

ABSTRACT

본 논문에서는 현재의 IT 분야의 핵심 기술 중에 하나인 임베디드시스템을 하드웨어/소프트웨어 통합설계 방법론에 기초를 두고 구성하는 방법의 한 가지를 제안하였다.
제안한 방법에 기초하여 각 종 진보된 멀티미디어시스템을 구현할 수 있으리라 사료되며, 또한 이를 기반으로 좀 더 진보된 각종 디지털컨텐츠를 구현할 수 있으리라 전망되며, 특히 최근 대두되고 있는 모바일 컨텐츠 구현에 적용이 기대된다.

키워드

Embedded System, Advanced Multimedia System, Mobile Digital Contents

Ⅰ. Introduction

In recently, the IT(Information Technology) fields are bring up the most important fields in 21th century.[1-5]

As we know well, key technologies of the 21th IT fields are embedded systems, multimedia systems and digital contents etc. These technologies are fused each other, then emerging the new life paradigm for our life style.[6-10]

In this paper, we propose a method of constructing the embedded systems that is the important technology be able to implement advanced multimedia systems and digital contents creating. During the last years, embedded system engineers have come across significant changes in system due to increasing complexity of the systems.[1,6,11-12]

To fulfill the aforementioned requirements, system engineering calls for methodologies and tools that will enable the production of highly complex embedded systems, with shorter development times and reduced cost. Significant research activity is currently taking places in the area of hardware/software co-design, in order to cope with the design problems of modern embedded systems.[1,10-11]

Ⅱ. Key in Embedded System Design

During the last years there has been a lot of activity around embedded system design. This has been caused mainly for two reasons.

First, the development of electronic technology allows the integration of increasingly complex systems on a single chip. This has risen the need for new techniques and tools to cope with the complexity of modern designs.

Second, the market pressure demands for shorter development times and cost effective designs. The net result is significant research activity in the area of embedded systems, and especially in field of hardware/software co-design. The design of systems that have been developed by the different hardware-software co-design approaches have revealed innovations in several design aspects : specification, estimation, partitioning, prototyping, co-simulation, etc. Nevertheless, most approaches support specification languages that are either fixed or not widely used or in adequate for system level specification. The methodological support is limited to the description of the design phases and the tools that should be used in each phase, while continuous subsystems are not support by most methodologies.

Telecommunication and multimedia computing are among the fastest growing segments of the micro-electronics market today. At the same time, programmability is becoming increasingly important for facilitating flexible designs that can be customized with differentiating features for use in multiple products. To facilitate flexible low-cost designs in short design time, emerging designs are based on heterogeneous embedded system architectures.

For example, the following Fig.1 describes embedded systems for mobile phone and Fig.2 shows embedded systems for home networking(or home automation).

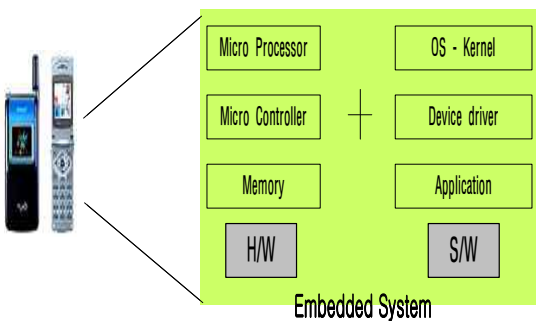

Fig.1 Embedded Systems of mobile phone

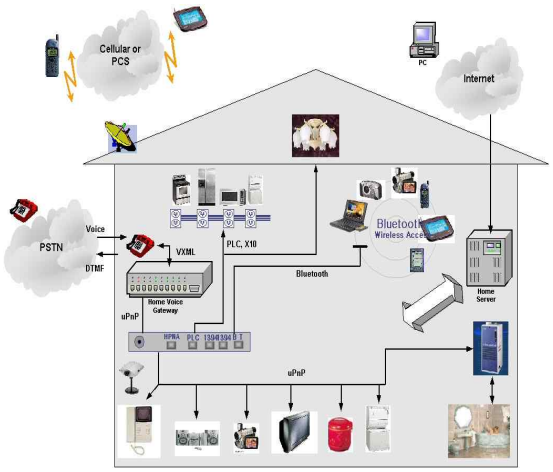

Fig.2 Embedded systems of home networking(or home automation)

Ⅲ. Conclusion

This paper present a method of construction of embedded systems based on hardware/software co-design. The proposed method enable to apply recent multimedia systems that is rapidly growing of the new information technology area. Also, the proposed method introduce efficient construction method for advanced embedded systems for the future. For the future, more efficient embedded systems are needed for the sake of more advanced multimedia systems, digital contents including mobile digital contents. Therefore, we research above mentioned embedded systems at now.

Reference

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