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Abstract
As the digital multimedia related technologies being developed rapidly, the demand on the high quality and diversity of the high-tech products is increasingly. The traditional AM and FM broadcasting systems which use analog technologies to deliver audio information may have not be able to content with people's requisition for multimedia information. The newly developed DAB (Digital Audio Broadcasting) system uses digital modulation techniques and can provide user very good quality of multimedia information. The DAB system has many advantages, for example, achieving single frequency networks; can against the severe multi-path effects, can convey six high-quality stereo programs and deliver multimedia (video, image, text and data). Therefore, the broadcasting service has been moving towards the era of digital multimedia transmission.
In this thesis, we employ the Advanced RISC Machine (ARM) as a key controller to implement a DAB service on demand system. This system consists of a receiver and a transmitter system. Using the Samsung S3C4510B as the controller and integrating tuner, baseband and D/A chips, we build up a receiver platform. A GPRS module also is included in the receiving system so that the developed DAB receiver can achieve the uplink transmission. In the transmitter side, besides the DAB transmitter, by using Visual Basic, we also carry out a service user interface and a server system on PC so that the transmitter side can response the users' service requests. Based on the design functions of the developed DAB transmitter and receiver system, the multimedia service on demand through the DAB channel can be achieved and also be verified.
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