

Application of Embedded Real-time Software in Computer Software Design

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Abstract: With the upsurge of information network technology revolution, the Internet is popularized all over the world, the information network technology revolution makes people completely in the network world, the whole world can be connected instantly through the Internet as a medium, and the cost of interpersonal communication is decreasing day by day. With the increasing investment in science and technology in China, the embedded software structure has been greatly developed, and it has also become a topic of discussion in information technology. But the times are changing with each passing day, and for the development of a technology, there are new challenges every moment. At present, embedded real-time software has been widely used in computer software design, which greatly optimizes the running environment of computer software, improves the performance of computer, and also provides convenience for many users. This paper aims at the application of embedded real-time software in computer software design, analyzes the benefits of embedded real-time software to computer software design, and then sets out the connection between the two, and puts forward suggestions for subsequent development, so that the combination of the two can be further optimized to input new blood for computer software design.

1. Introduction

With the progress of science and technology, embedded software is gradually popularized in the design of computer software. Embedded software is a kind of software that needs to be embedded in computer hardware facilities and used on this basis. Such an operation form makes embedded software itself have a major feature, that is, it rarely occupies the resource space of the computer itself. In addition to being able to be used in personal computers, embedded systems can also be used in large-scale systems throughout the country for military, information and other aspects of management, so it is widely used. Using embedded software to connect with embedded system, embedded software itself is very practical, and can be adjusted according to the different characteristics of market users to meet various needs, so that it has a strong competitiveness. At the same time, embedded software is very small, will not occupy too much resources, in the operation of the computer energy consumption is relatively small, as far as other software, its advantages are reflected.[1].

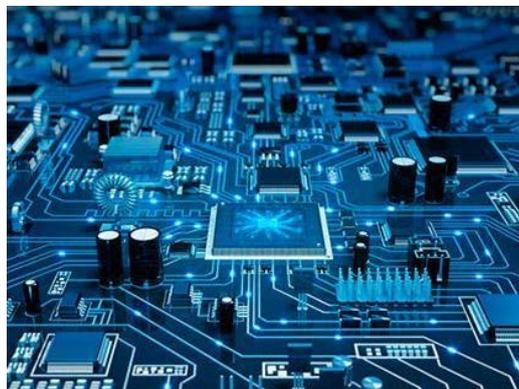


Figure 1 Embedded software

2. Features of Embedded Software

2.1. Very Practical

Embedded software is a specific software form, which takes embedded system as the carrier. Thanks to this form, the value of embedded software has been enhanced, which is more practical in daily use. Based on this, embedded software in the process of use, can respond to different user needs, to meet the needs of different customers. Under such advantages, embedded software can obviously adapt to the needs of the market, relatively strong market competitiveness, is a more cost-effective choice for users, can bring more generous benefits to the designers of software.

2.2. Strong Adaptability

As mentioned earlier, embedded real-time software is a kind of software that needs to be embedded, so that it can adapt to the needs of multiple audiences and be able to coordinate quickly according to the change of requirements in the process of user use. At the same time, as long as the embedded software can be used to ensure that it is small, then in the computer software will not occupy too much resources, so as to better serve the computer [2]. In addition, for embedded real-time software, in the use of the process also highlighted its real-time, that is, according to the specific situation, real-time response, such software in use when the mobility is more prominent.

2.3. Does not Affect the Stable Operation of the Computer

Embedded real-time software is characterized in that it is embedded in the hardware facilities of the computer, often does not affect the operation of other software, and can work well with other software. In this way, while running embedded real-time software, the computer can run other related software stably, while maintaining the stability of computer software operation, it can also improve the safety factor of computer operation to a certain extent. Embedded real-time software in the process of application will be the computer's own software real-time detection, if there is a loophole, will be timely repair work, to maintain the normal operation of each software, which to a certain extent makes the computer in a smooth running environment, compared with other software, more able to coordinate the relationship between the operation of different software.

2.4. Easy to Operate and Reduce Energy Consumption

Compared with other software, embedded real-time software does not need the support of the system, and does not occupy too much computer resource space when running, and also reduces the demand for computer energy consumption when using. In addition, as mentioned above, embedded real-time software is embedded in the hardware facilities of the computer, which reduces the dependence on the computer itself, and in this respect also reduces the energy consumption of the computer to a certain extent. On the other hand, because it does not need to occupy the running space of the computer and squeeze the operation of other programs of the computer, the running speed of embedded real-time software is relatively fast, which helps to improve the efficiency of computer software work.

2.5. Rational Allocation of Resources

In the process of running a computer, it is sometimes necessary to open multiple software to work at the same time, when using non-embedded software, it will squeeze the running resources of the computer in the process of using. The embedded real-time software can allocate and arrange the resources of computer software reasonably under such circumstances, so that the computer can complete many tasks simultaneously under the guarantee of high efficiency and improve the running efficiency of the computer. In addition, embedded real-time software can also arrange the resources of the computer, automatically close the relevant software, and make a reasonable division of the existing running space.[3].



Figure 2 Computer software design

3. How to be Embedded Real-Time Software in Computer Software

3.1. Design Solutions Identified

Different computers have different configuration and running requirements, so before running embedded real-time software, we should first make a scientific analysis of the computer that needs embedded software. According to the specific situation of the computer, considering the needs of all aspects of operation, then design the applicable embedded real-time software. First of all, the designer should be fully aware of the needs of the user before the design, to ensure that the design of the software is within the requirements of the user and the carrying range of the computer, in the design of embedded real-time software, according to the requirements of the user to actively modify the design of the software, but also can not violate the carrying capacity of the computer itself. In the future use and maintenance process, users should follow the requirements of embedded real-time software, and use the experience feedback to the designer for further optimization [4]. If non-user-responsible damage occurs during operation, designers should re-plan to improve their design and deliver better products.

3.2. Rational use of Embedded Real-Time Software

According to the change of the stage of computer operation, the computing opportunity puts forward different requirements, and accordingly, the embedded real-time software should also make corresponding adjustments to meet the different requirements of computer software design. Embedded software is flexible in use, and because of this feature, it can be quickly adjusted in different stages of computer use, so that they always have a suitable state for the operation of the computer, fully stimulate their own advantages. In the simple operation, reasonable replacement, can make embedded real-time software function to the extreme.

3.3. Functioning of Modules

The composition of embedded real-time software is accomplished by a variety of functional modules, each module plays a different role, if the corresponding module does not fully play its own role, then the corresponding embedded software will have a certain lack of functionality [5]. In the active development of embedded software, we should fully consider the role of each module and apply it reasonably in the software, so as to coordinate the operation of the computer. In addition, to ensure that embedded real-time software in use, we should ensure that the different tasks in different time required by the design address is consistent, which requires that in the early stage of the design, we should make a scientific plan of the content of the software design, and in the process of use according to the specific situation to adjust accordingly.



Figure 3 Testing embedded software

4. Conclusion

Under the background of high information technology, the prosperity of the economy and the development of the computer are mutually reinforcing. For the economy, the development of the computer industry can simplify the economic cost, save human resources and management resources, improve efficiency, save circulation time, thus improve economic efficiency and obtain high economic benefits. For the computer industry, only if the economy is prosperous, can science and technology be supported by basic funds, can the innovation of generation after generation of data be carried out, and can the long-term development be achieved. Embedded real-time software, as a necessity in the development of computer industry, even though it is widely used and has obvious advantages, its own defects can not be ignored. On the way of its development, there is still a great room for progress, which requires designers to jump out of the existing development areas and open up new fields. It is necessary to try to make the connection between embedded software and the hardware facilities of the computer weaken, and at the same time, to optimize the embedded system, so that it and embedded software progress together. Therefore, we should find a new breakthrough in embedded real-time software as far as possible, and create a better quality embedded real-time software, so that it becomes the help of the development of computer industry.

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