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自动化

电力录波系统实时性瓶颈影响因素分析

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摘要：

电力录波系统的性能受多因素制约，以致系统实时性较难提高，鉴于此，采用改进的基于链路层网络传输方法，通过应用层直接访问网络控制器，避免了系统中对数据帧的封装与解析的冗余操作，提高了系统实时性。通过对系统中各接口数据处理时间的精确测量，可知制约电力录波系统实时性的主要因素为处理器间总线访问速度、录波文件形成效率、故障文件存储与网络传输速度，且网络传输速度为影响系统实时性瓶颈因素。通过后置存储功能，调整并行总线访问模式，优化故障录波文件形成逻辑，以减小对实时性的影响。实际测试验证了系统功能的有效性与实时性。

关键词：

Analysis on Real-Time Bottleneck Factors Influencing Power System Recording System

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Abstract:

The performance of power recording system is restricted by many factors so that it is difficult to improve the real-time performance of recording system. For this reason, to improve real-time performance of power recording system such measures as utilizing improved link-layer based network transmission technique and directly accessing network controller via application layer to avoid the redundant operation in data packaging and unpacking are proposed. By means of accurately measuring processing time of interface data within the recording system the main restrictive factors, including bus accessing speed among processors, forming efficiency of record files, storage of fault files and network transmission speed, are revealed, and the network transmission speed is the very bottleneck factor influencing the real-time performance of the recording system. Using the measures such as postposition of storage function, adjusting parallel bus access mode and optimizing forming logic of recorded fault file, the influence of these factors on real-time performance of the recording system is mitigated. Actual testing results verify the effectiveness and real-time performance of the improved recording system.

Keywords:

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