

REZUMAT

Teza de doctorat elaborat prezint studii i cercet ri privind optimizarea solu iilor constructive ale mecanismelor modulelor de memorie extern cu discuri magnetice rigide din cadrul sistemelor de calcul.

Multitudinea i evolu ia continu a solu iilor constructive al mecanismelor din cadrul sistemelor de calcul se explic prin necesitatea de a satisface în detaliu varietatea tuturor cerin elor impuse de spectrul extrem de larg al mediului în care se folosesc sistemele de calcul.

În aceste condi ii realizarea tezei de doctorat în acest domeniu a presupus o larg i actual documentare bibliografic , o orientare în multitudinea de aspecte de cercetare i tendin e de dezvoltare, o selec ie a problemelor de interes în perspectiv .

Sintetic, lucrarea vizeaz sistematizarea i modelarea diverselor mecanisme cu rol fundamental în procesul de lucru al unit ilor de hard disk, precum i optimizarea acestor mecanisme prin metode de analiz multicriterial . Pentru optimizarea mecanismelor, utilizate în scopuri bine determinate, cum ar fi acelea de pozi ionare i control, blocare sau ac ionare a bra elor port capete, au fost identifica i parametrii de evaluare i ponderile acestora. Sunt supuse optimiz rii mecanisme de ultim genera ie, pentru unele dintre acestea prezentându-se analiza cineto-dinamic prin metode adecvate, specifice teoriei mecanismelor, eviden iind totodat sistemele de control ale acestora.

Principalele contribu ii de ordin teoretic i aplicativ aduse în lucrare sunt sintetizate astfel:

- realizarea unei baze de date a celor mai noi solu ii constructive de mecanisme de blocare a bra ului port capete în caz de avarie din cadrul unit ilor de memorie extern cu discuri magnetice rigide;
- realizarea unui studiu de benchmarking pentru mecanismele prezentate folosind metode de analiz multicriterial ;
- realizarea unui software specializat, cu rol de benchmark, pentru mecanismele din cadrul memoriilor externe cu discuri magnetice rigide;
- realizarea unui studiu privind compensarea erorilor de pozi ionare a capetelor magnetice din memoriile externe cu discuri magnetice rigide, erori datorate vibra iilor produse de mi carea de rota ie axial a pachetului de discuri.

ABSTRACT

The elaborated doctorate thesis presents studies and researches regarding the optimization of constructive solutions of external memory mechanisms modules with rigid magnetic disks within calculation systems.

The multitude and continuous evolution of the constructive solutions of the mechanisms within calculation systems explains itself through the necessity of satisfying in detail the variety of all requirements imposed by the large spectrum of the environment in which calculation systems are used.

In these conditions the achievement of the doctorate thesis in this domain imposed o large and up-to-date bibliographical documentation, an orientation into the multitude of researching aspects and development trends, a selection of the interest problems in prospective.

Synthetically, the work aims at renewal and modelling different mechanisms with fundamental role into the working process of the hard disks units, as well as optimization of these mechanisms through methods of multicriterial analysis. For optimization of the mechanisms, used with well determined reasons, for example those for positioning and control, blocking or action of port-heads arms, there were identified the evaluation parameters and their weights. Mechanisms of new generation are put into optimization process, for some of them being presented the kinetic-dinamic analysis through appropriate methods, specific for the mechanisms theory , highlighting at the same time their control systems.

The main contributions , theoretical and applicative, brought into the thesis are synthesized as follows:

- realizing of a data-base with the newest constructive solutions for blocking of port-heads arms mechanisms in case of average within external memory units with rigid magnetic disks;
- realizing of a benchmarking study for the presented mechanisms using multicriterial analysis methods;
- realizing of a specialized software, with benchmark role, for the mechanisms within external memories with rigid magnetic disks;
- realizing of a study regarding compensation of magnetic heads positioning errors within external memories with rigid magnetic disks, errors which are determined by the vibrations produced by the axial rotation movement of the disks package.