

## ABSTRACT

**METHOD FOR THE REAL-TIME ORDERING OF A SET OF  
NONCYCLICAL MULTI-FRAME TASKS**

Method for the real-time scheduling of an application consisting of a plurality  $m$  of software tasks executing at least one processing operation on a plurality  $N$  of successive data frames, each of said tasks  $i$  being defined at least, for each of said frames  $j$ , by an execution time  $C_i^j$ , an execution deadline  $D_i^j$  and a guard time  $P_i^j$  with respect to the next frame  $j+1$ , said guard time  $P_i^j$  being greater than or equal to said deadline  $D_i^j$ , the following steps being executed:

- for each task  $i$ , calculating the ratios  $\frac{C_i^j}{D_i^j}$  and then searching for the maximum over all of said frames  $j$  of said ratios  $\max(\frac{C_i^j}{D_i^j})$ ,
- comparing the sum  $\sum_{i=0}^{m-1} \max_{0 \leq j \leq N-1} (\frac{C_i^j}{D_i^j})$  with the number  $p$  of processors operating in parallel over which the total computation load of the real-time application is distributed,
- if said sum  $\sum_{i=0}^{m-1} \max_{0 \leq j \leq N-1} (\frac{C_i^j}{D_i^j})$  is less than or equal to the number  $p$  of processors, then concluding on the feasibility of the real-time execution of all of said software tasks distributed over said processors.

Figure 3 to be published



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