



Max-plus-linear Systems for Manufacturing Systems: Modeling and Control

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Résumé en anglais

In this chapter, the dynamics of manufacturing systems is characterized through the occurrence of events such as parts entering or leaving machines. Furthermore, we assume that the relations between events are expressed by synchronizations (i.e., conditions of the form: for all k greater than or equal to l , occurrence k of event e_2 is at least t units of time after occurrence $k-l$ of event e_1). Note that this assumption often holds when the considered manufacturing system is functioning under a predefined schedule. First, we discuss the modeling of such systems by linear statespace models in the $(\max; +)$ -algebra (due to this property, such systems are often called $(\max; +)$ -linear systems). Second, standard open-loop and closed-loop control structures for $(\max; +)$ -linear systems are recalled. These control structures lead to a trade-off between the rapidity of systems and their internal buffer sizes. Some techniques to influence this trade-off are presented.

URL de la notice <http://okina.univ-angers.fr/publications/ua14869> [4]

Liens

- [1] [http://okina.univ-angers.fr/publications?f\[author\]=3737](http://okina.univ-angers.fr/publications?f[author]=3737)
- [2] <http://okina.univ-angers.fr/laurent.hardouin/publications>
- [3] [http://okina.univ-angers.fr/publications?f\[author\]=1945](http://okina.univ-angers.fr/publications?f[author]=1945)
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