

Tertimuss

A Simulation Environment for Thermal-aware Real Time Multiprocessor Scheduling

- This project is the result of a joint effort involving the GaZ group at the University of Zaragoza, Spain and the CINVESTAV - IPN Unidad Guadalajara, Mexico.
- The peer website of this page at the CINVESTAV can be reached [at this link](#)
- As of today, we have released two simulation environments. **TCPN-ThermalSim** was our starting point, developed in MatLab

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with

Tertimuss

being a complete rebuild in Python, which constitutes our current simulation tool.

Tertimuss

- **Tertimuss is a simulation environment for designing and testing Real Time multiprocessor schedulers subject to thermal constraints. It consists of four modules. The first module allows defining the system (processors, tasks) and their parameters. The second module automatically build a TCPN model, generating the state and thermal equations. The third module is for selecting, modifying or adding and parameterizing the scheduling algorithm. The fourth module allows the user to perform simulations and collect, process and plot results. The parameters of the tasks can be defined either manually or automatically (by means of the integrated UUnifast algorithm). You can subscribe to the public version of Tertimuss at <https://github.com/uz-gaz/Tertimuss>**

TCPN-ThermalSim

- Download at <https://www.gdl.cinvestav.mx/art/uploads/SchedulerFrameworkTCPN.zip>

Related papers

- Rubio-Anguiano, L., Desirena-López, G., Ramírez-Treviño, A., Briz, J.L. Energy-efficient thermal-aware multiprocessor scheduling for real-time tasks using TCPNs. *Discrete Event Dynamic Systems* (2019) 29 (3): 237-264. Sept. 2019 : <https://doi.org/10.1007/s10626-019-00285-x>
- G. Desirena, A. Ramírez, J.L. Briz, C.R. Vázquez, D. Gómez. Thermal-Aware Real-Time Task Scheduling in MPSoCs using Timed Continuous Petri Nets. *ACM Transactions on Embedded Computing Systems* 18, 4, 16 Article 36 (May 2019), 24 pages. <https://doi.org/10.1145/3322643>
(
[see on-line](#)
)
- Gadiel Desirena López, Lorena Rubio Anguiano, Antonio Ramírez Treviño, José Luis Briz. A Flexible Framework for Real-Time Thermal-Aware Schedulers using Timed Continuous Petri Nets. *Computación y Sistemas*, Vol 23, No 2 (2019) ISSN 2007-9737 <http://www.cys.cic.ipn.mx/ojs/index.php/CyS/article/view/3204>
- L. Rubio-Anguiano, G. Desirena-López, A. Ramírez-Treviño, J.L. Briz. Energy-Efficient Thermal-Aware Scheduling for RT Tasks Using TCPN. *IFAC PapersOnLine* 51-7 (2018) 236.242. WODES'18, Castellammare di Stabia, Sorrento Coast, Italy, May 30 - June 1, 2018. [Open access preprint](#)
- Gadiel Desirena, José Luis Briz, Carlos Renato Vazquez, Antonio Ramirez, David Gómez-Gutiérrez. "On-line Scheduling in Multiprocessor Systems based on continuous control using Timed Continuous Petri Nets" 13th International Workshop on Discrete Event Systems (WODES 2016) Xi'an, China May 30. June 1, 2016. DOI=10.1109/WODES.2016.7497860. [Open access preprint](#)

Development team

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Escrito por José Luis Briz

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