

# Application BASTRI

## Fiches Equipes

### DREAMPAL (SR0683RR)

Dynamic Reconfigurable Massively Parallel Architectures and Languages  
DREAMPAL (SR0548UR) □ DREAMPAL

**Statut:** Terminée

**Responsable :** Vlad Rusu

**Mots-clés de "A - Thèmes de recherche en Sciences du numérique - 2023" :** *Aucun mot-clé.*

**Mots-clés de "B - Autres sciences et domaines d'application - 2023" :** *Aucun mot-clé.*

**Domaine :** Algorithmique, programmation, logiciels et architectures  
**Thème :** Architecture, langages et compilation

**Période :** 01/01/2015 -> 31/12/2016  
**Dates d'évaluation :** 22/03/2016

**Etablissement(s) de rattachement :** <sans>  
**Laboratoire(s) partenaire(s) :** <sans UMR>

**CRI :** Centre Inria de l'Université de Lille  
**Localisation :** Centre Inria de l'Université de Lille  
**Code structure Inria :** 101046-1

**Numéro RNSR :** 201321075F  
**N° de structure Inria:** SR0683RR

### Présentation

Standard Integrated Circuits are reaching their limits and need to evolve to meet the requirements of next-generation computing. One of the most promising evolutions are the next-generation 3D FPGAs (three-dimensional Field Programmable Gate Arrays), which will allow efficient dynamic reconfigurations in a massively parallel manner. Software applications running on such architectures can efficiently reconfigure the hardware at runtime according to their needs, thereby achieving significant savings in circuit space, energy consumption, and execution time. This new hardware paradigm opens many opportunities for research since there are no no execution models and no dedicated tools for programming software applications on them.

### Axes de recherche

We shall address the following topics: designing massively parallel dynamically reconfigurable architectures; proposing execution models as well as dedicated programming languages for them; and designing software engineering tools for those languages: compilers, simulators, and formal verifiers, for enabling the rigorous, efficient, and safe programming of software applications on the new hardware. Our application domain is safety-critical embedded applications performing intensive computation.

### Relations industrielles et internationales

#### Contact

- **Responsable :** Vlad Rusu
- **Tél :**
- **Secrétariat Tél :**

#### En savoir plus

- Site sur [inria.fr](http://inria.fr)
- Derniers Rapports d'Activité : [2015](#) , [2016](#)

#### Documents sur la structure

- [Intranet](#)
- [Privés](#)

#### Décisions

- [10629](#) (12/01/2015) : création
- [11983](#) (19/12/2016) : fermeture

#### Localisation

- **Adresse postale :** Centre Inria de l'Université de Lille Parc Scientifique de la Haute Borne 40, avenue Halley Bât.A, Park Plaza 59650 Villeneuve d'Ascq France
- **Coordonnées GPS :** 50.606, 3.149