

HPFC
(High Performance Fortran Compiler)
datastructure

Fabien Coelho

CRI, École des mines de Paris

May 17, 2024

Introduction

```
import align from "hpf.newgen"  
  
import distribute from "hpf.newgen"  
  
import entity from "ri.newgen"  
  
import entity_int from "ri.newgen"  
  
import statement from "ri.newgen"  
  
import reduction_operator from "reductions_private.newgen"  
  
entities = list:entity*  
  
entity_entities = entity->entities  
  
renaming = old:entity x new:entity  
  
statement_renamings = persistent statement->renaming*  
  
statement_entities = persistent statement->entities  
  
entitymap = entity->entity  
  
overlap = lower:int x upper:int  
  
overlapsmap = entity->overlap*  
  
hpf_newdecl = { none , alpha , beta , gamma , delta }  
  
hpf_newdecls = dimensions:hpf_newdecl*
```

```
alignmap = entity->align

distributemap = entity->distribute

newdeclmap = entity->hpf_newdecls

entity_status = new_host:entitymap x new_node:entitymap x
old_host:entitymap x old_node:entitymap x referenced:entity_int

data_status = newdeclmap x alignmap x distributemap x
arrays:entity* x templates:entity* x processors:entity*

numbers_status = numbermap:entity_int x arrays:int x
templates:int x processors:int

dynamic_status = dynamics:entity_entities x primary:entitymap x
renamings:statement_renamings x tokeep:statement_entities

remapping = renaming x referenced:entity*

hpfc_status = overlapsmap x data_status x numbers_status x
entity_status x commons:entity* x dynamic_status x pures:entity* x
ios:entity* x computed:remapping* x reductions:statement_entities

hpfc_reductions = initial:entity x replacement:entity x
operator:reduction_operator
```