

# CODES@OEHI Hackathon 2019



Monday, 28 October 2019

**13:00 - 13:20 Welcome and introduction 20'**

Speaker: Mr. Mirko Cestari (CINECA)

**13:20 - 14:20 Introduction into Arm-based hardware platforms 1h0'**

Speakers: Mr. F. Magugliani (E4), Mr. H. Schick (Huawei), Mr. S. Nassyr (JSC)

**14:20 - 15:20 Introduction into Arm development software 1h0'**

Speakers: Mr. Phil Ridley (Arm), Mr. Oliver Perks (Arm)

**15:20 - 15:45 Coffee break**

**15:45 - 17:30 Hands-on #1 1h45'**

**17:30 - 18:00 Feedback from teams and wrap-up 30'**

Speakers: Mr. Phil Ridley (Arm), Mr. Oliver Perks (Arm)

# CINECA

Private consortium under public control:

- 67 universities,
- 9 public research entities
- 3 university hospitals
- MIUR

## Main activities

- Supercomputing for research
- IT Support to MIUR
- IT Supporto to universities
- Technology transfer



**Our numbers:**  
100M€ turnover  
19th in the TOP500  
800 employees  
in BO,MI,Roma,NA

## DAVIDE

**45 nodes**

IBM POWER 8 2x8 cores (HT 8) NVLINK  
4 NVIDIA P100  
128 GB RAM/CN

## CLOUD HPC

**216 nodes** Intel BDW 2x18 cores, 2.3 GHZ  
128 GB RAM/CN  
OpenStack

## GALILEO

**1000 nodes**

Intel BDW 2x18 cores, 2.3 GHZ  
128 GB RAM/CN

**36 nodes**

Intel HSW 2x8 cores, 2.4 GHZ  
2 NVIDIA K80 GPUS  
128 GB RAM/CN

## Marconi A2

**3600 nodes**

Intel KNL 68 cores, 1.4 GHZ  
96 GB RAM/CN

8 SHARED LOGIN NODES

## Marconi A3

**1512 nodes**

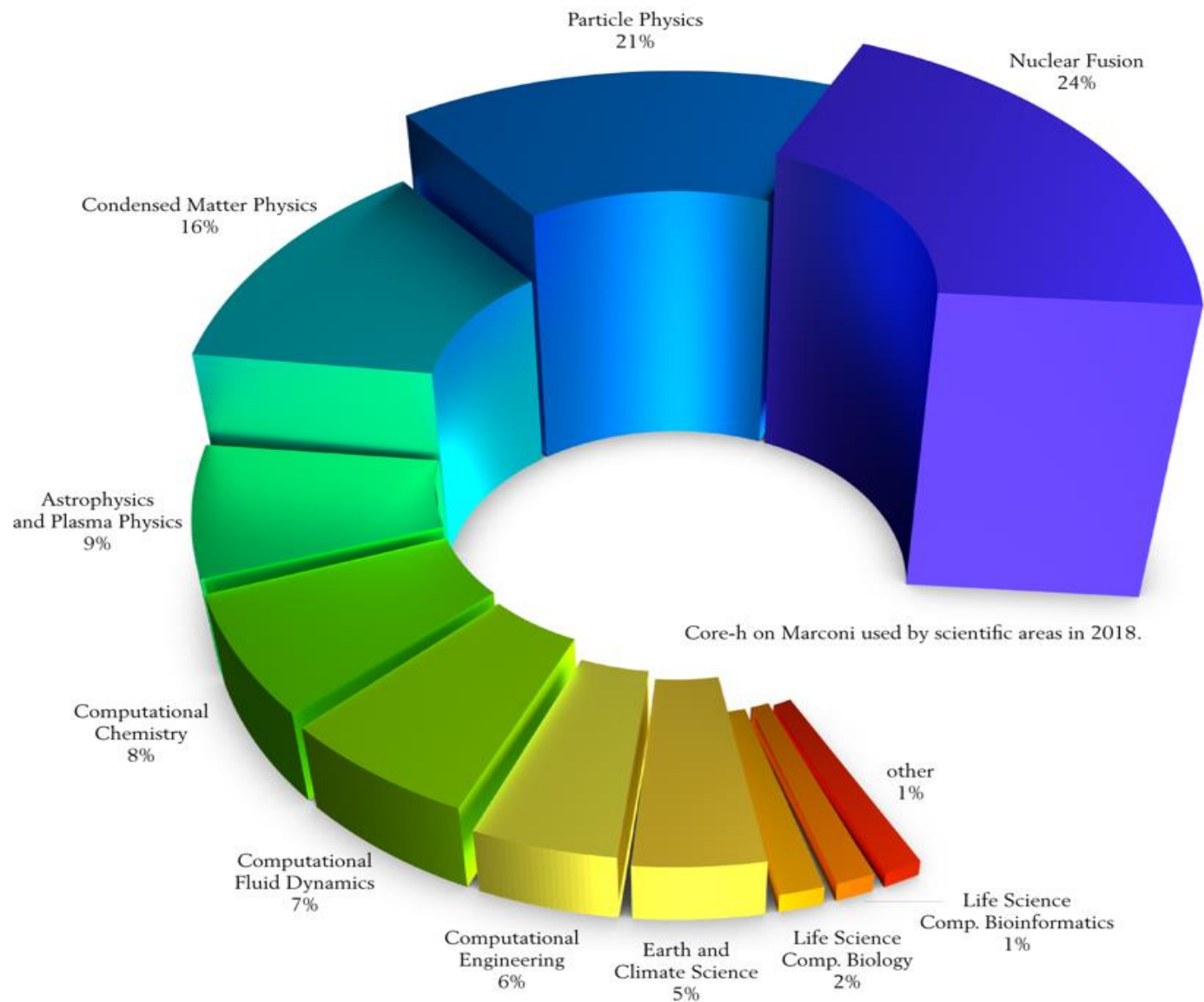
Intel SKL 2x24 cores, 2.1 GHZ  
192 GB RAM/CN

**792 nodes**

Intel SKL 2x24 cores, 2.1 GHZ  
192 GB RAM/CN

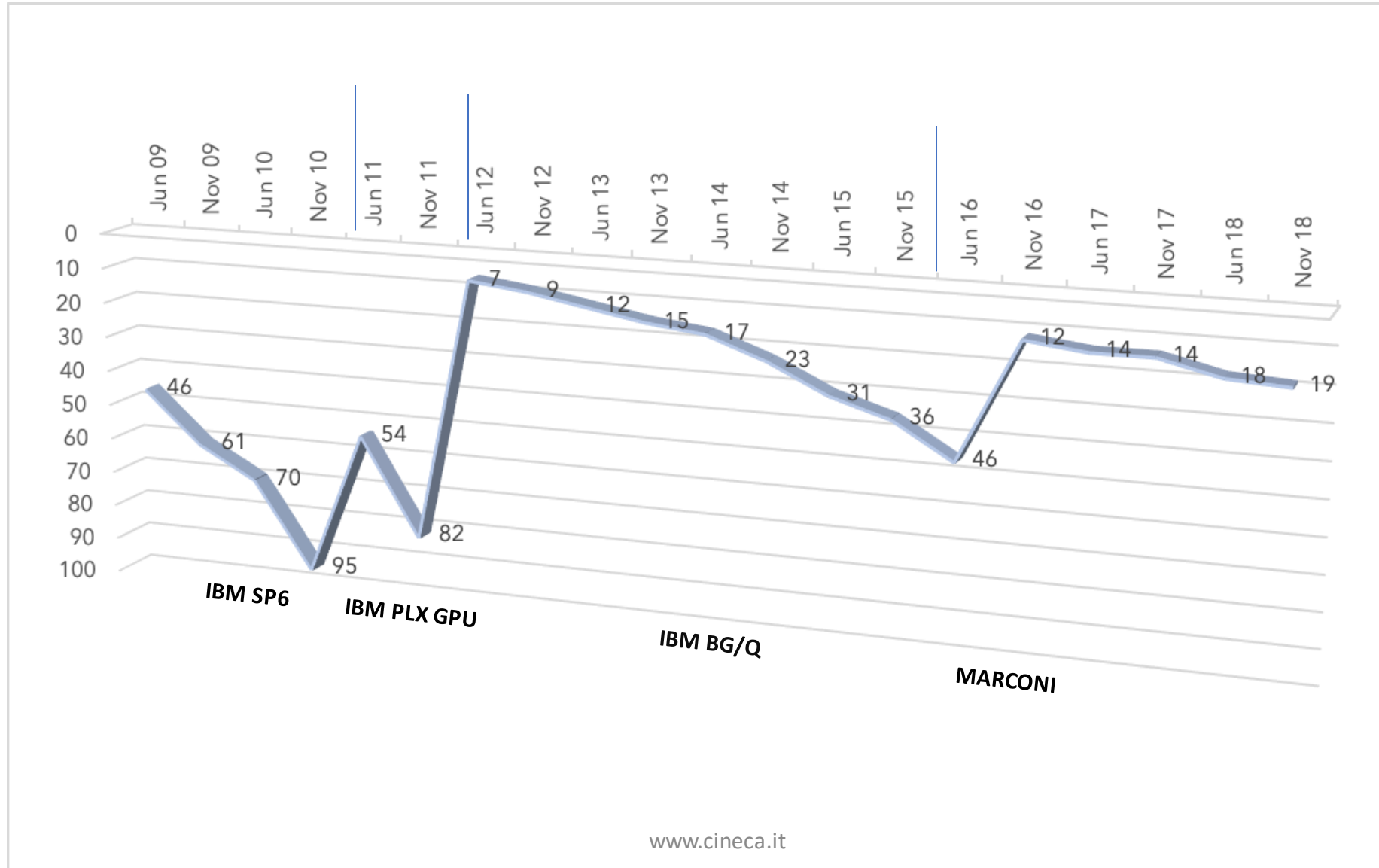
**720 nodes**

Intel SKL 2x24 cores, 2.1 GHZ  
192 GB RAM/CN

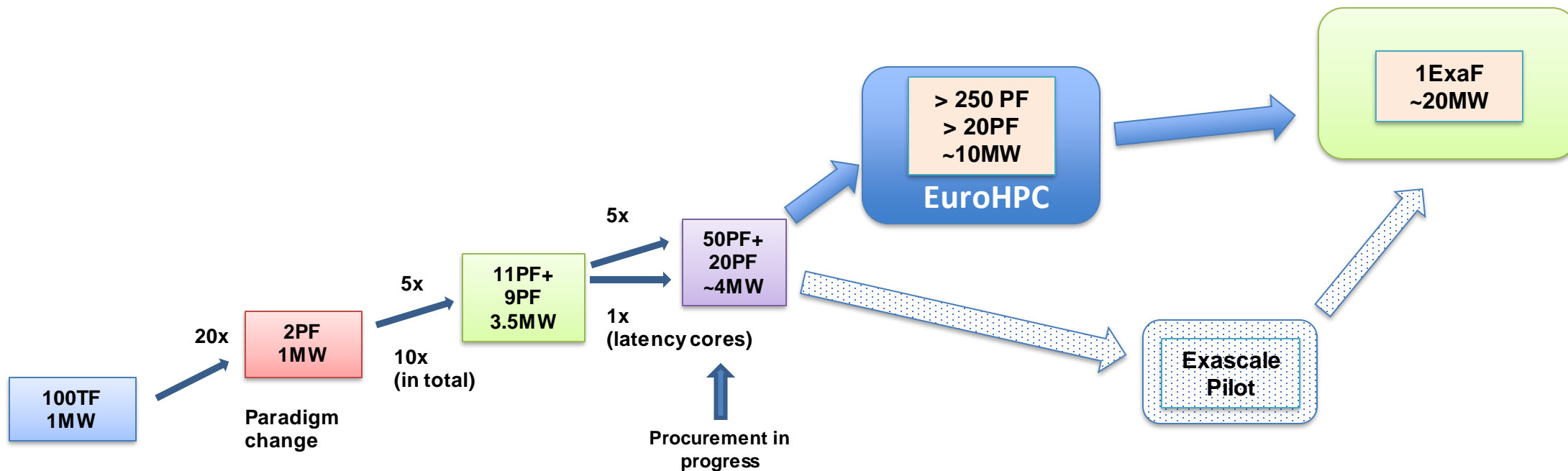


**3900 active users**  
**2400 active projects**

# Cineca trackrecord



# Roadmap



2009	2012	2016	2019/2020	2021	2023-2025	2025-2027
IBM SP6 Power6	Fermi IBM BGQ PowerA2	Marconi Lenovo Xeon+KNL	Marconi PPI4HPC ICEI - PPIHBP	pre-Exascale with EuroHPC contribution	post-Marconi Exascale pilot technology (National Research Plan)	EuroHPC post Exascale/ National Full Exascale

# Evolution of the infrastructure



European infrastructure Projects

PPI4HPC  
ICEI-Fenix



Marconi-100  
> 25 Pflops target



Federated  
computing and cloud  
system

European initiatives

EuroHPC pilots  
EPI



EuroHPC  
Joint Undertaking

Pilots  
for exascale



European  
Processor  
Initiative

# Bologna Science Park





# CODES@OEHI Hackathon 2019



## Additional notes

- You can practice after the wrap-up (**until 19:00**)
- **E4** kindly agrees to make **ARMIDA** available to the participants of the hackathon until **Nov 15th, 12:00noon CET**.
  - While E4 will make any efforts to make the system available, users may experience system unavailability and/or system reconfiguration without any prior warning.
- Buffet just outside the class room